

# Green River

## Transportation Master Plan



OCTOBER 2004

Prepared By  
UDOT Planning Section  
4501 South 2700 West  
Salt Lake City, Utah 84114-3600



State of Utah

JON M. HUNTSMAN, JR.  
*Governor*

GARY R. HERBERT  
*Lieutenant Governor*

## DEPARTMENT OF TRANSPORTATION

JOHN R. NJORD, P.E.  
*Executive Director*

CARLOS M. BRACERAS, P.E.  
*Deputy Director*

May 2, 2005

Mayor Glen Dale Johnson  
P.O. Box 620  
Green River, Utah 84545

Dear Mayor Johnson:

Attached is a *Final* copy of the Green River Community Transportation Plan (CTP). The CTP is a tool to help guide transportation decisions for your community, which will help meet the transportation visioning discussed during the public meetings held October 27<sup>th</sup> and 28<sup>th</sup>, 2004.

Many projects were identified during the public meetings, and local priorities established for several projects while developing the CTP. This project list will help the city develop an improvement program addressing your unique transportation issues. We are forwarding projects and comments for the state highway system, which are highway operations based, to the appropriate Utah Department of Transportation (UDOT) Regional Office so they may be addressed as priorities allow. In the meantime, UDOT will be using the list of projects identified for State Routes in our Long Range Planning Process. The Statewide Long Range Transportation Plan (LRP) identifies needs on the state highway system, from which projects are selected to be included in our Statewide Transportation Improvement Plan (STIP).

It is important to restate that a CTP is a living document that changes as your City changes. We encourage you to revise the CTP as frequently as necessary to meet Green River's needs.

Thank you again for allowing us to help develop your Community Transportation Plan. We always value public input regarding the state highway system. Your Community has provided us valuable insight for our Statewide Long Range Planning Process.

Sincerely,

John Quick, P.E.  
Engineer for Transportation Planning

Encl



January 20, 2005

Utah Department of Transportation  
Dan Kuhn, Green River CTP Program Manager  
4501 South 2700 West  
Salt Lake City, Utah 84114-3600

Dear Dan Kuhn,

January 11, 2005, during the regular city council meeting, agenda item #3  
Discuss/approve/deny Master Transportation Plan was discussed and approved by a majority vote  
of City Council.

Sincerely,



Mayor Glen Dale Johnson

*City of Green River*  
240 East Main Street, Green River, Utah  
City Council Agenda  
Regular Meeting  
Tuesday, January 11, 2005  
6:00 p.m.

**ORDER OF BUSINESS:**

Pledge of allegiance directed by Blaine Evans.

1. Presentation from Community Center
2. Discuss/approve/deny consent agenda.  
Minutes for December 14, 2004 Regular Meeting  
Minutes for December 14, 2004 Special Meeting  
Minutes for December 14, 2004 Public Hearing  
November 2004 Recorders Report  
December 2004 Treasurers Report  
January 2005 Payment Approval Report  
Resolution No. 01-2005  
Resolution No. 02-2005
3. Discuss/approve/deny Master Transportation Plan.
4. Discuss Water Master Plan.
5. Discuss/approve/deny loaning money to Green River Canal Company.
6. Discuss/approve/deny rezoning a tract of land located south of Hazel Dawn Hunt to the railroad tracks then west to Gary Ekker's from A-1 to R-3.
7. Discuss/approve/deny forming a citizens committee to make recommendations on issues that could affect Green River.
8. Discuss/approve/deny implementing an annexation policy for future growth and development.
9. Discuss/approve/deny hiring someone to build and maintain a web site.
10. Discuss/approve/deny disposing of flagpole at old City Hall.
11. Discuss/approve/deny bids on J.W.P. Museum roof.
12. Discuss/approve/deny bids on J.W.P. Museum security system upgrade.
13. Discuss/approve/deny increasing compensation paid members of the governing body or statutory officials.
14. Employee and Council Reports.
15. Executive Session.
16. Adjournment.

I, Conae Black, being first duly appointed as City Recorder of the City of Green River, do hereby affirm that the foregoing agenda was posted in the places given below on the 10 day of January 2005.

Conae Black  
Conae Black, Green River City Recorder

Green River Post Office Jekker  
Green River City Office Conae Black

# Green River

## Transportation Master Plan

Mayor .....	Glen D. Johnson
City Council .....	Kerry Bigelow Thomas Burr Blaine Evans Trent Fluckey Dan Harrison
City Recorder.....	Conae Black
Public Works Director .....	Bryan Meadows

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\* If available for this study

# 1. Introduction

## 1.1. Background

Green River, located in Emery County, is a commercial, farming, and ranching community situated in a valley where the Green River flows between low banks for several miles between Gray and Labyrinth canyons. The site was important long before the settlement era since it was the most accessible crossing point on the Green River south of the Uinta Basin. The Spanish Trail, a trade route between Santa Fe and Los Angeles in active use during the 1830s and 1840s, forded the river about three miles upstream from the present town, as did the 1853 railroad survey under the direction of Captain John W. Gunnison. The site's accessibility also made it a natural staging and supply point for travel on the river.



Settlement began in the late 1870s in the form of Blake Station on the overland mail route between Salina, Utah, and Ouray, Colorado. The first permanent settlers of European stock were the families of Thomas Farrer and Matthew Hartman. The Farrers played a leading role in the community for several decades, operating a general store, a bank, and a ferry service.

The completion of the Denver and Rio Grande Western Railway in 1883 made Green River a shipping point for livestock and mining equipment and supplies. The railroad built an engine house, switching yards, and a three-story hotel called the Palmer House. The influx of railroad workers gave the town 375 residents by 1890, in addition to a fluctuating population of cowboys, sheepherders, and prospectors from the Book Cliffs and the San Rafael Desert. The town's location on the "outlaw trail" between Robbers Roost and Browns Park also contributed to its "wild west" reputation during that period.

In the early 1890s, the railroad moved much of its divisional operations to Helper, cutting the Green River population by more than half. This boom-and-bust cycle was to be repeated several times in the twentieth century. An oil boom in 1901 brought a rush to locate claims and some drilling activity but no commercial production. In 1906 a land developer named E.T. Merritt began promoting Green River as a fruit-growing area comparable to the Grand Valley of Colorado. Several hundred acres of peach trees were planted on both sides of the river, but problems with the irrigation system and harsh winter temperatures killed most of the trees before they could come into production. The southeastern Utah uranium boom of the 1950s provided a temporary economic stimulus. More important was the establishment of the Utah Launch Complex of the White Sands Missile Base in 1964, which brought the town's population to a high point of almost 2,000 before the closing of the complex in the 1970s led to yet another economic downturn.

Each of these boom cycles had some lasting impact upon the community. The "Farrer Subdivision" that makes up the southeastern portion of the town was a product of the railroad era. The "upper town" to the north and west was developed during the peach boom, a period that also saw the incorporation of the town in 1906 and the building of a high school in 1910. The Community Presbyterian Church was also established during this period. A Latter-day Saint ward was organized in 1904, disbanded in 1915, and reestablished in 1923. During the uranium boom, Jim Hurst developed an innovative flying service to carry workers and supplies to remote mining locations. The successors to Hurst's operation now carry on an active business of flying river running parties. The "missile base" era brought new schools and civic services and saw the Community Church become the Green River Bible Church. Catholic and Baptist worship services were also instituted during this period.

Agriculture and ranching have been important to the Green River economy from the beginning. While the climate proved unsuitable for peaches, the relatively long frost-free season and hot summer temperatures of Green River's 4,000-foot elevation are ideal for growing melons. J.H. "Melon" Brown was experimenting with the crop as early as 1900, and the industry reached its peak in the 1920s when the Green River "winter melon," a hard-skinned variety that would keep until Christmas, was well known in Midwestern and Eastern markets. The largest agricultural operation was the Wilson Produce Company, whose properties were later acquired by Thayne Brothers. Melons are still an important crop, and the annual Melon Days celebration is a highlight of the local social year.

Green River's location is still its most important asset. Early attempts to establish commercial riverboat operations between Green River and Moab ended in failure, but pioneer "river rats" like Bert Loper laid the foundation for a recreational boating industry. The town's river heritage is celebrated in the John Wesley Powell River History Museum, opened in 1990. The historic Green River crossing is now the route of Interstate 70. The 105 miles from Salina to Green River represent the longest stretch without services on the entire Interstate highway system, so traveler service industries are quite naturally the town's economic mainstay today. The population of Green River in 1990 was 744 in Emery County plus an additional 122 across the river in Grand County. (The previous Grand County section of the city has now been annexed into Emery County)

This information was provided from [www.onlineutah.com](http://www.onlineutah.com), in an article written by Edward A. Geary.

## **1.2. Study Need**

The Green River City has seen a 12.36% population increase within the last decade and a 17.37% population decrease the decade before. From 1960 to 2000, the population has decreased -9.5%. Population in the Green River area has gone through cyclical changes, but the overall trend shows very consistent trend in the population. A well-established transportation plan is needed to provide direction for continual maintenance and improvements to Green River City's transportation system.

With the aging infrastructure of Green River's transportation system and the need for system improvements, a more extensive transportation plan is necessary for Green River City and the surrounding area.

Some of the major transportation issues around the State are as follows:

- Safety
- Railroad crossings
- Trails (bicycle, pedestrian, & OHV)
- Signals
- City interchange aesthetics
- Connectivity of roadways
- Property access
- Truck traffic
- Alternate routes
- Speed limits

Green River City recognizes the importance of building and maintaining safe roadways, not only for the auto traffic but also for pedestrians and bicyclists.

### **1.3. Study Purpose**

The purpose of this study is to assist in the development of a transportation master plan for Green River City. This plan could be adopted by Green River City as a companion document to the city's General Plan. With the transportation master plan in place the city can qualify for grants from the State Quality Growth Commission.

The primary objective of the study is to establish a solid transportation master plan to guide future developments and roadway expenditures. The plan includes two major components:

- Short-range action plan
- Long-range transportation plan

Short-range improvements focus on specific projects to improve deficiencies in the existing transportation system. The long-range plan will identify those projects that require significant advance planning and funding to implement and are needed to accommodate future traffic demand within the study area.

### **1.4. Study Area**

The study area includes Green River City, and land adjacent to it that is in Emery and Grand Counties. A general location map is shown in Figure 1-1. A more detailed map of the study area and city limits is shown in Figure 1-2. The study area was developed by Green River City and approved by the Green River City Transportation Master Plan Technical Advisory Committee.

The roadway network within the study area includes I-70, US-6, & SR-19. Each of these roadways provides a vital function to Green River City, to the rest of Emery County and to the State of Utah. I-70 connects all points east and west including Richfield and the Utah/Colorado State Line. I-70 also connects to I-15 to the West. I-70 is a region commuter and commercial trucking route. US-6 connects areas to the North and West including an important route to the Wasatch Front and the Cities of Provo and Salt Lake City. SR-19 is the Main Street in Green River City and serves local business and community circulation needs. SR-19 connects Main Street to I-70 on the east and West and is an important route as it provides a central access from the downtown area. These roadways along with the local road network are shown in Figure 2.

## 1.5. Study Process

The study, which began in October 2004, is proceeding as a cooperative effort between Green River City, UDOT, and local community members. It is being conducted under the guidance of Green River City Officials.



The following individuals participated in the initial meetings to provide input used to create this document. This group listed below will be referred to as the Technical Advisory Committee or “TAC” for this document.

Glen D. Johnson	Mayor, Green River		
Trent Fluckey	City Council		
Conae Black	City Recorder		
Jeff Adams	Community Planning Director AOG		
Katherine Brown	Planning & Zoning Commission Chair		
Bruce Billings	Business Rep. (Gas n Go)		
Dustin Lunt	Business Rep. (Gas n Go)		
Chad Pinneo	Business Rep. (Gas n Go)		
Jonathan Billings	Business Rep. (Gas n Go)		
Connie Copenhaver	Planning Commission		
Mary Wilmarth	Citizen’s Committee		
Bryan Meadows	Green River Public Works Director		
Robert Smith	Planning & Zoning Commission		
Charlotte D. Uptain	Citizen		
Sgt. Darrel Mecham	Utah	Highway	Patrol

Figure 1-1: Green River Study Area Location

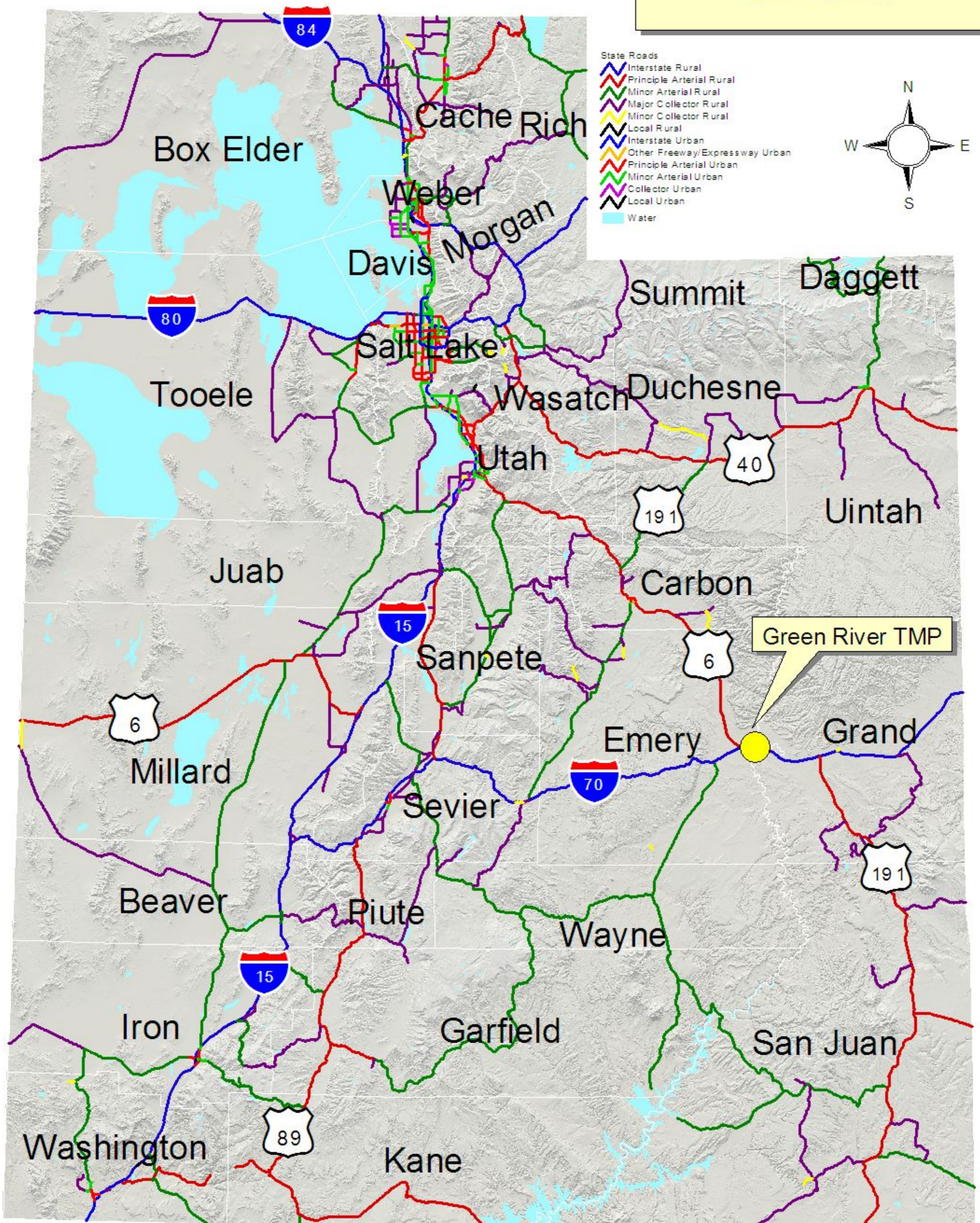
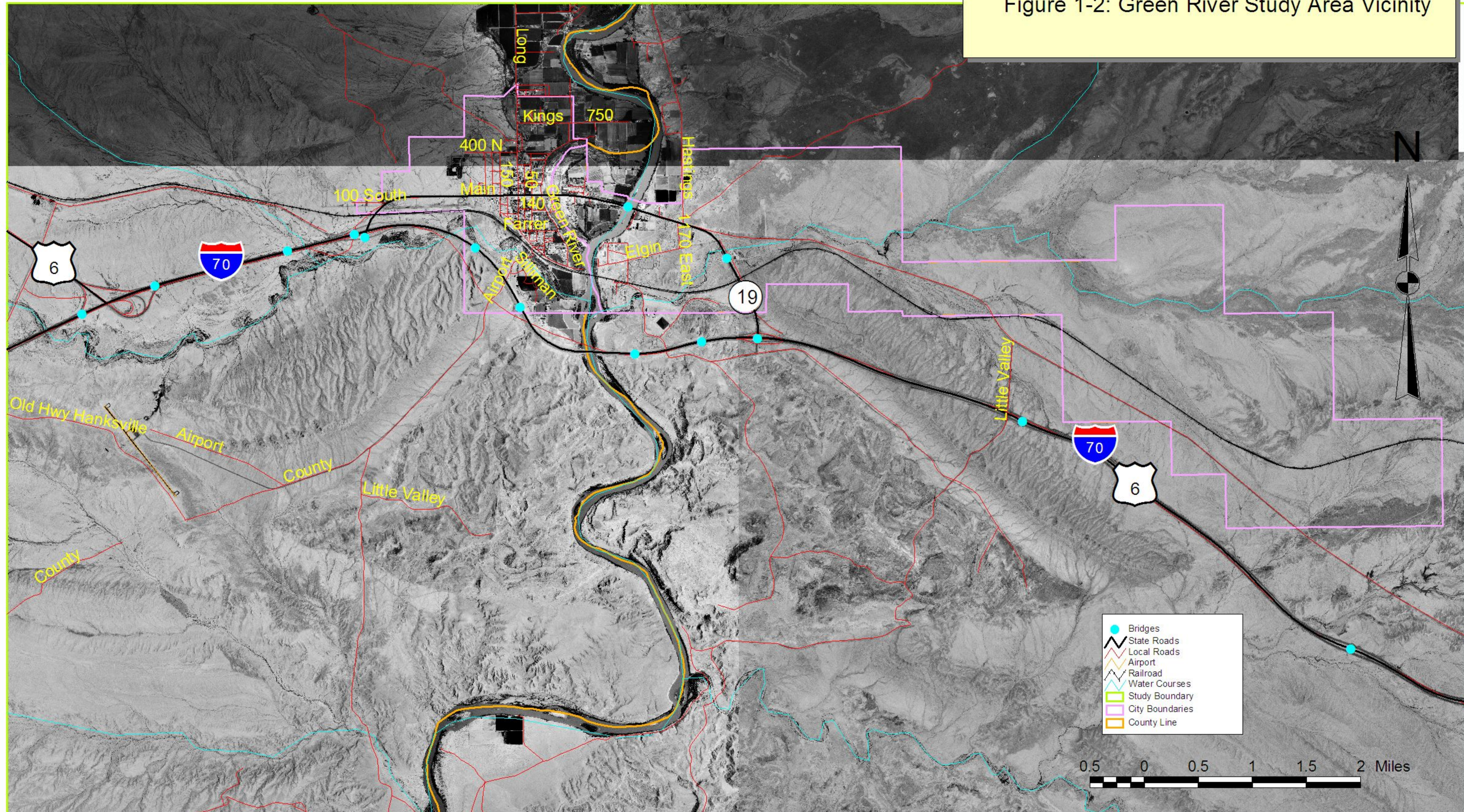


Figure 1-2: Green River Study Area Vicinity



The study process for the Green River City Transportation Master Plan consists of three basic parts: (1) inventory and analysis of existing conditions, (2) projection of future conditions, and (3) development of a transportation master plan (TMP). This process involves the participation of the TAC for guidance, review, evaluation and recommendations in developing the TMP to include development of future projects for the identified study area.

The TAC will evaluate each part of the study process. Their comments will be incorporated into the study's final report draft. The remainder of the final report draft will focus on the recommendation and implementation portion of the transportation plan program. Transportation projects that will be recommended for the short-term and long-range needs will be developed based on the TAC's recommendations and concurrence.

The study process allows for the solicitation of input from the public at two TAC workshops. This public participation element is included in the study process to ensure that any decisions made regarding this study are acceptable to the community.

The first TAC workshop provides an inventory and analysis of existing conditions and identification of needed transportation improvements. The second TAC workshop will focus on prioritization of projects, estimation of project costs, and discussion of the funding processes.

The TAC is expected to recommend those comments that are to be incorporated into the report and applicable to the goals of this study. The final report draft will be submitted to the City for review and comments.

Upon local review of the draft report, UDOT will prepare appropriate changes and submit the final report to the City for approval. The final report will describe the study process, findings and conclusions, and will document the recommended transportation system projects and improvements.

## 2. Existing Conditions

An inventory and evaluation of existing conditions within the study area was conducted to identify existing transportation problems or issues. The results of the investigation follow.

### 2.1. Land Use

In order to analyze and forecast traffic volumes, it is essential to understand the land use patterns within the study area. Much of the City is zoned Residential, but there are also many issues dealing with commercial and industrial properties. By analyzing the patterns or changes in land use, we can better predict the ever-changing transportation needs.

The Green River City Zoning map follows on the next page.

### 2.2. Environmental

In Utah there are a variety of local environmental issues. Each of the cities and counties need to look at what are the environmental issues in their areas on a case-by-case basis. There are many resources that can help local entities to determine what issues need to be addressed and how any problems that may exist can be resolved.

Some of the environmental concerns around the State are wetlands, endangered species, archeological sites, and geological sites among other issues. Environmental concerns should be addressed when looking at an area for any type of improvement to the transportation system. Protecting the environment is a critical part of the transportation planning process.

### 2.3. Socio-Economic (Census Brief: Cities and Counties of Utah, May 2001)

Green River City ranks 131st out of 235 incorporated cities and towns for population in the State of Utah. Historical growth rates have been identified for this study, because past growth is usually a good indicator of what might occur in the future. Chart 2-1 identifies the population growth over the past 50 years for the State of Utah, Emery County and Green River. Chart 2-2 identifies that population change in Green River City has ranged from 84.39% between 1950 and 1960 to -17.37% between 1980 and 1990, while growth in the State has gained between 18 and 38 percent during the past 50 years.



# City of Green River Zoning Map

- A-1
- C-1
- I-1
- O-1

- R-1
- R-2
- R-3
- Rm-1

Planning & Zoning Comm.

\_\_\_\_\_  
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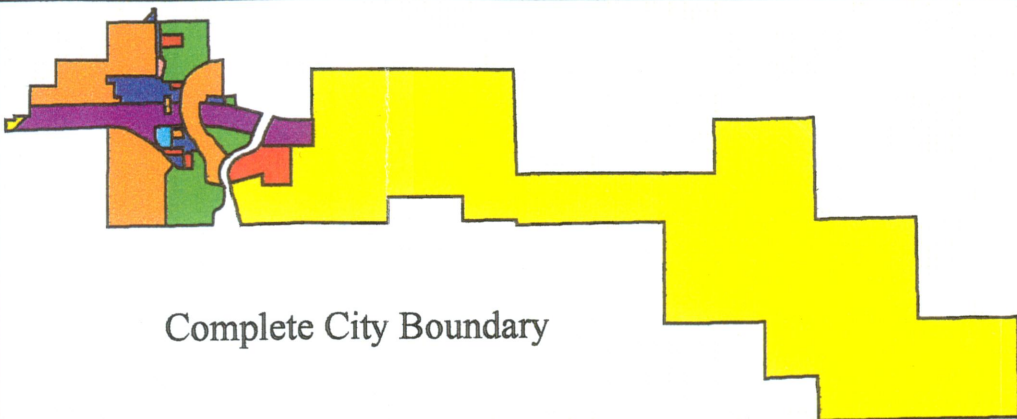
City Approval

Date

Mayor

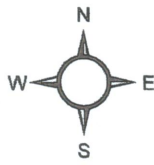
City Council

City Recorder



**EMERY**  
COUNTY  
IT DEPARTMENT

This map is made for viewing purposes only. Emery County assumes no liability for the accuracy of this map.

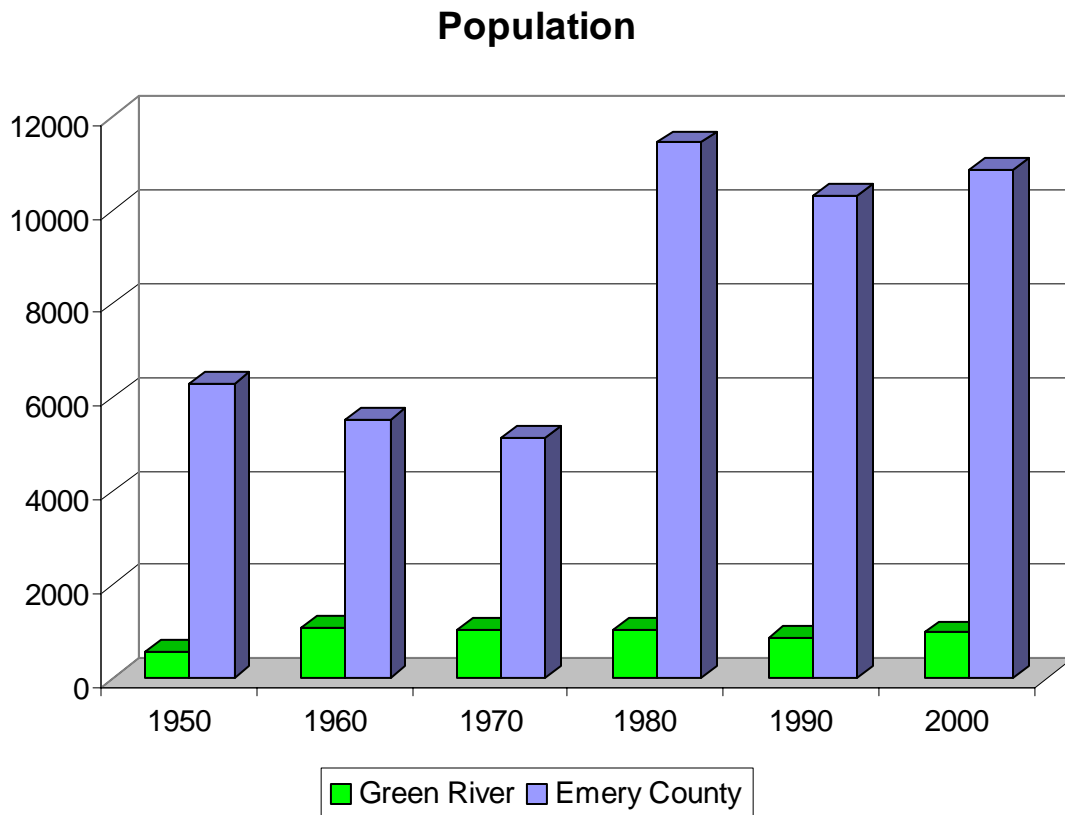


0 250 500 1,000 1,500  
Feet

Map Printed On 04/22/03

Chart 2-1. Population Data

Year	Population		
	Utah	Emery County	Green River
1950	688,862	6,304	583
1960	890,627	5,546	1,075
1970	1,059,273	5,137	1,033
1980	1,461,037	11,451	1,048
1990	1,722,850	10,332	866
2000	2,233,169	10,860	973



Source: U.S. Bureau of the Census

<http://www.governor.utah.gov/dea/OtherPublications.html>

Chart 2-3 identifies yearly population growth rates for the State of Utah and Emery County.

Though the State population has grown every decade from 1950 until 2000, Emery County has also showed a boom / bust rate of growth in population over the same period.

Green River City has some unique demographic characteristics when compared with the State, particularly with age demographics. In the 25 to 54-age category, the State is at 38.6% the County is at 36.6% and the City is at 35.3%. For the 65+-age category, the State is at 8.5%, the County is at 10.1% and the City is at 11.2%. The State's median age is 27.1 years and the County's median age is 30.1 years, City's median age is 28.8 years. Another interesting statistic is that of Veteran status with State at 10.7%, County at 12.0%, and Green River City at 12.0%.

The 2000 median household income in Green River City is \$28,000, compared to the State median household income of \$45,726.

The unemployment rate in Green River City was 3.9 percent in 2000. Due to Green River City's large reliance on mining jobs, the city has had larger rates of unemployment especially throughout the 90's, slightly greater than that of the State. According to the Utah Department of Employment Security (UDES), in 2000 there were approximately 422 employed people in Green River City or 63.5% of the population. The city has 17 unemployed people, which is 2.6 % of the population. There are 4,362 employed people in Emery County or 57.3% percent of the population. The county has 298 people unemployed, which is 3.9% of the population.

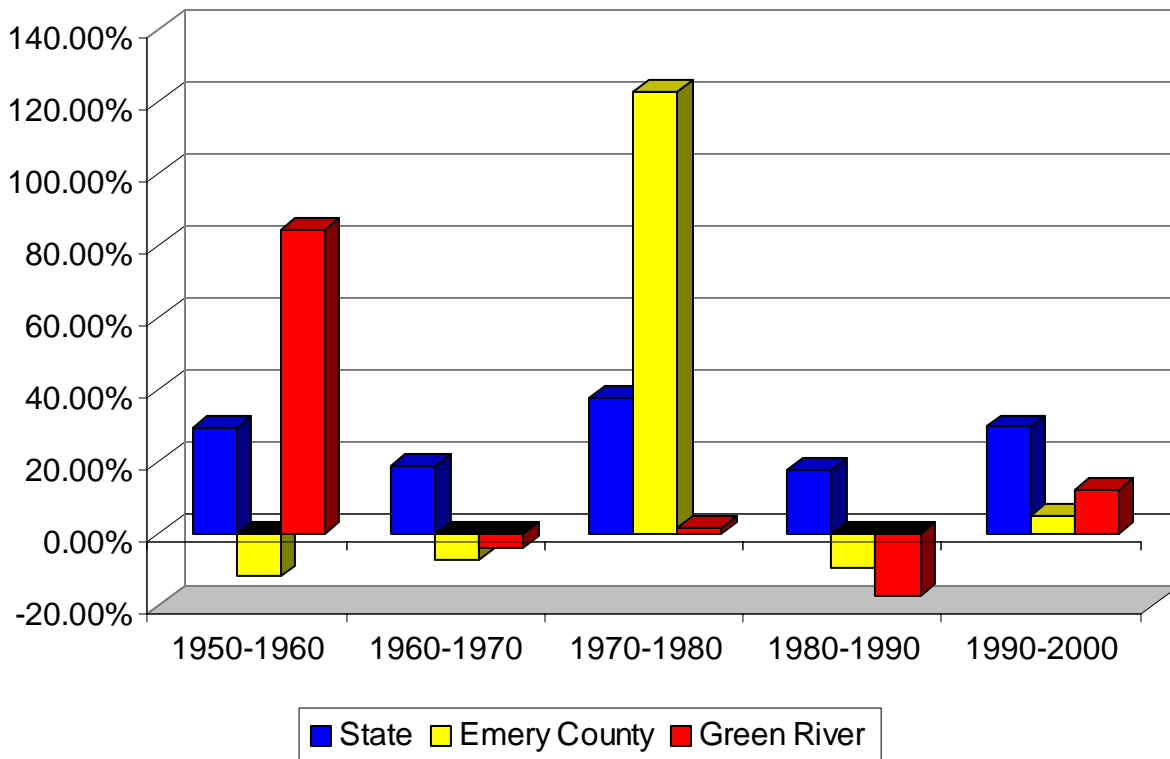
The majority of employees in Emery County work in three primary employment sectors: Government, Mining and TCPU (telecommunication & public utilities) as shown in Chart 2-5. In the county, these sectors make up 45.97% of the labor force. Another interesting note was that housing built from 1990-2000 were 8.8% of total for Green River City compared to 25% for the state. Also homes built before 1939 were 17.6% of the total for Green River City with 10% for the state.



Figure 5. Population Change Data

Decade	State of Utah	Emery County	Green River City
1950-1960	29.29%	-12.02%	84.39%
1960-1970	18.94%	-7.37%	-3.91%
1970-1980	37.93%	122.91%	1.45%
1980-1990	17.92%	-9.77%	-17.37%
1990-2000	29.62%	5.11%	12.36%

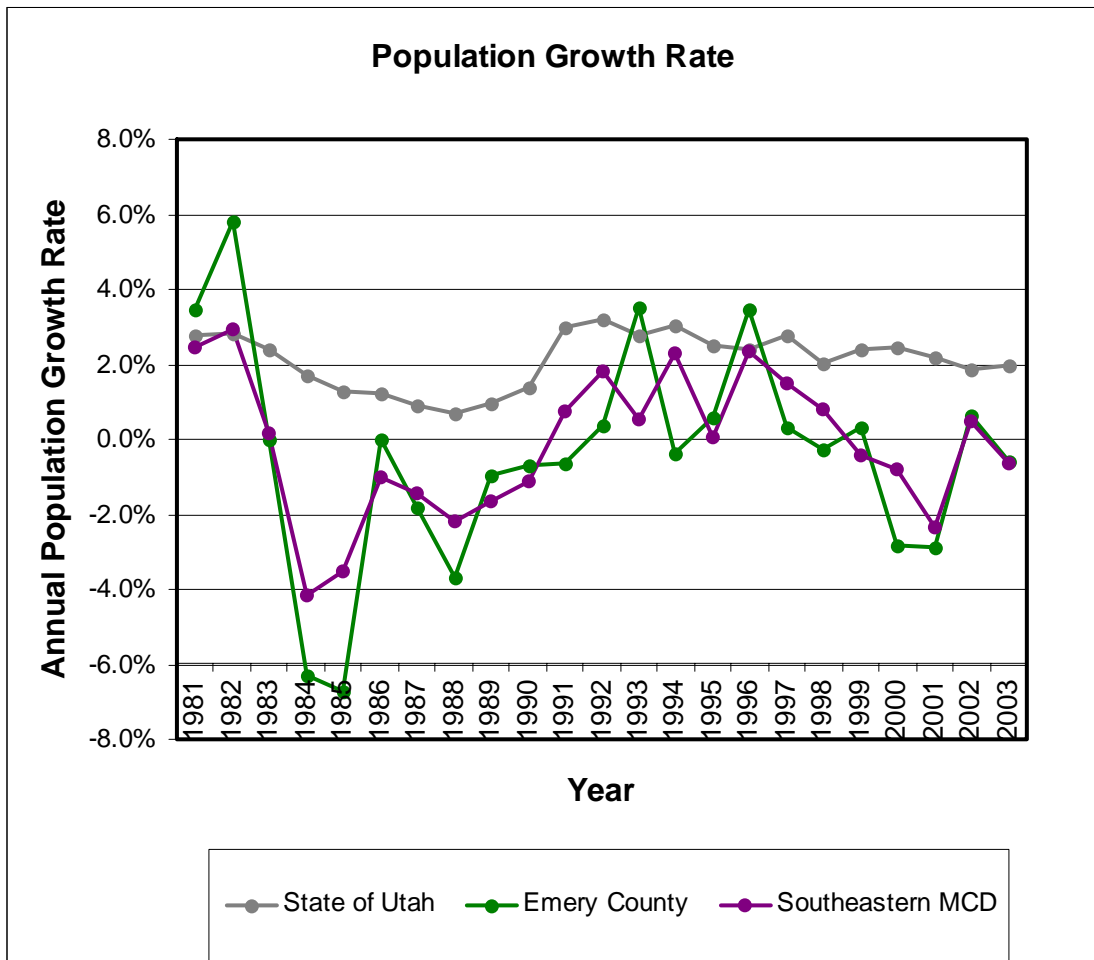
### Decenial Population Change



Source Data: U.S. Bureau of the Census

<http://www.governor.utah./dea/OtherPublications.html>

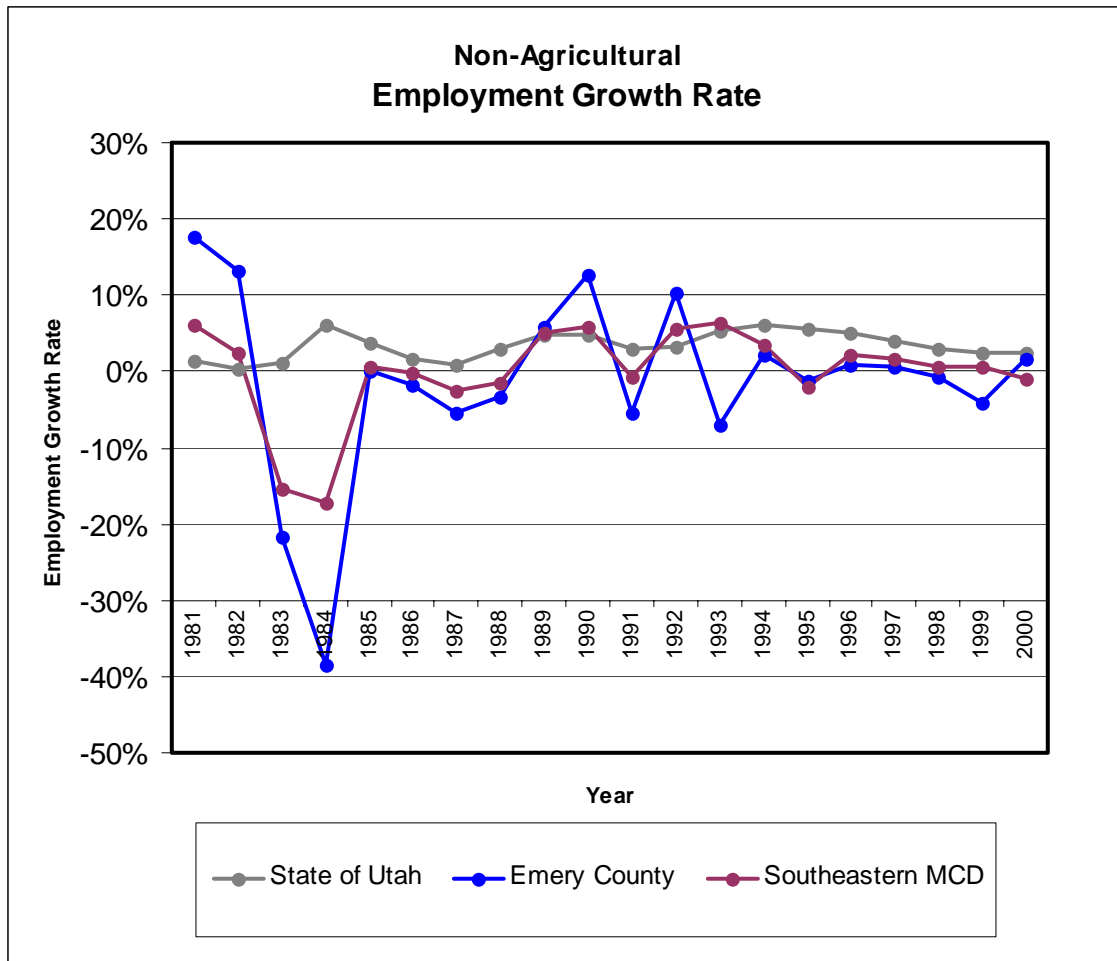
Figure 6. Population Growth Rate (1980-2000)



MCD = Multi-County Districts, Southeastern MCD = Carbon, Emery, Grand & San Juan Counties

Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea>

Figure 7. Employment Growth Rate (1980-2000)



MCD = Multi-County Districts, Southeastern MCD = Carbon, Emery, Grand & San Juan Counties

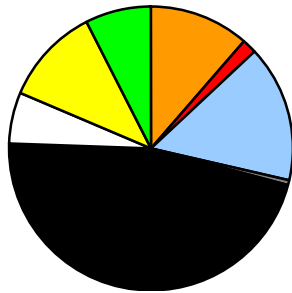
Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea>

Figure 8. Employment Sectors (1980-2000)

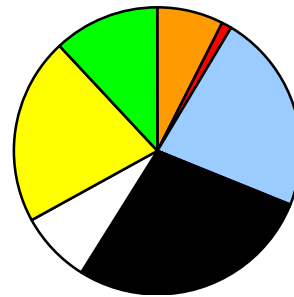
Sector	1980	1990	2000	$\Delta\%$ 1980-2000
Construction	11.60%	7.38%	9.60%	-32.57%
FIRE	1.44%	1.16%	1.28%	-27.69%
Government	15.91%	22.57%	24.30%	24.44%
Manufacturing	0.49%	0.36%	0.49%	-18.18%
Mining	46.77%	27.61%	21.69%	-62.23%
Services	5.78%	7.88%	12.11%	70.77%
TCPU	11.40%	21.11%	17.02%	21.64%
Trade	7.42%	12.04%	13.61%	49.40%

FIRE = Finance, Insurance & Real Estate  
 TCPU = Telecommunications & Public Utilities

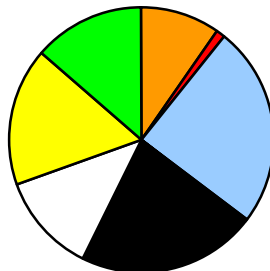
1980 Employment Sectors



1990 Employment Sectors



2000 Employment Sectors



Source: Governors Office of Planning and Budget  
<http://www.governor.utah.gov/dea/HistoricalData.html>

## 2.4. Functional Street Classification

This document identifies the current functional characteristics of the selected roadway network of Green River City. Functional street classification is a subjective means to identify how a roadway functions when a combination of the roadway's characteristics are evaluated. These characteristics include; roadway configuration, right-of-way, traffic volume, carrying capacity, property access, speed limit, roadway spacing, and length of trips using the roadway.

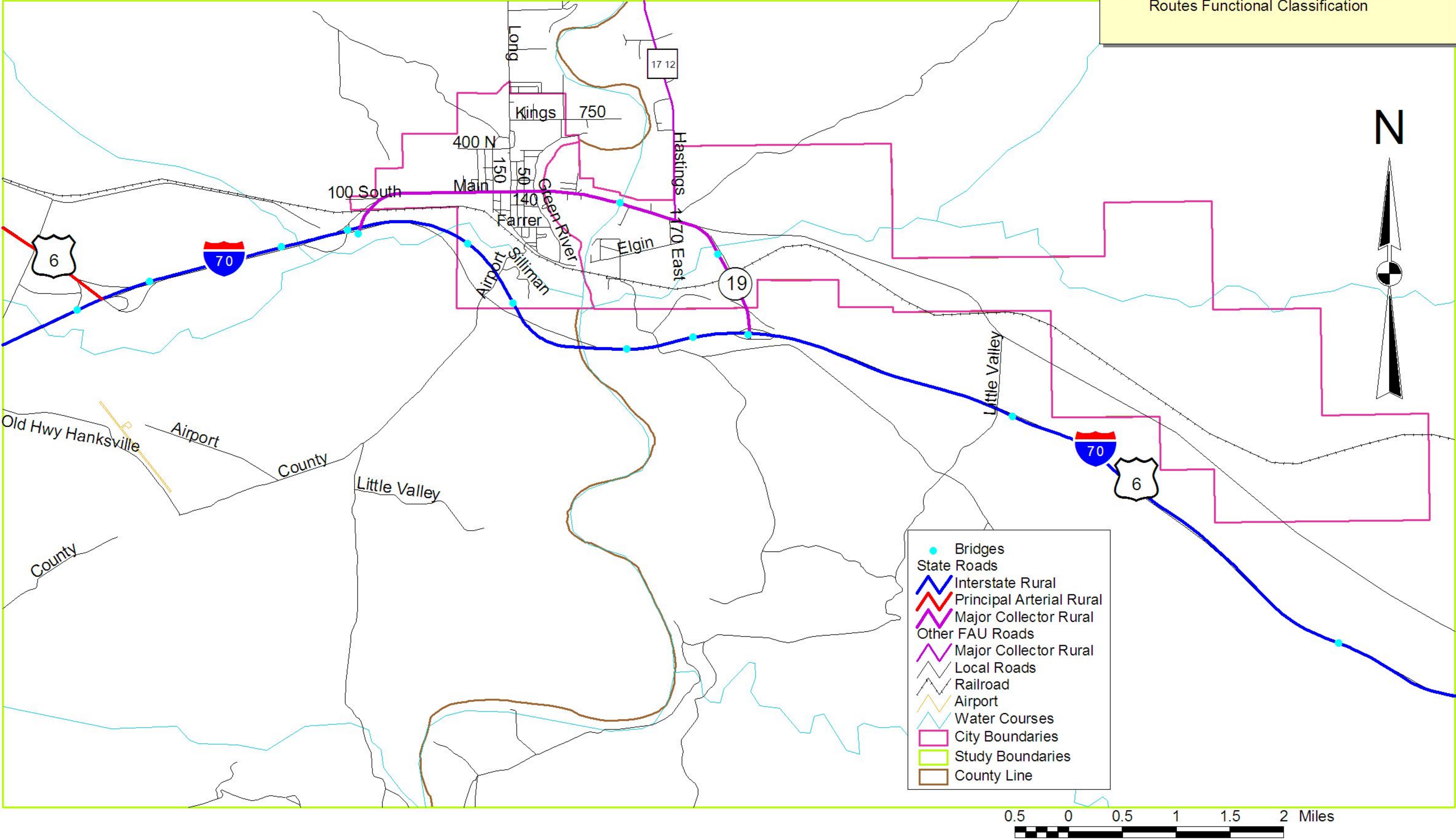
The primary functional classifications used in categorizing selected roadways of Green River City are: Interstate, Principle Arterial, Minor Arterial, Major Collector, Minor Collector and Local. An Arterial's function is to provide traffic mobility at higher speeds with limited property access. Traffic from the local roads is gathered by the Collector system, which provides a balance between mobility and property access trips. Local streets and roads serve property access based trips and these trips are generally shorter in length.

The Green River City area is accessed by I-70, US-6 via I-70 as well as by SR-19. SR-19 bisects the City East to West. US-6 extends northwest toward the Wasatch Front at a distance of approximately 133 miles.

The functionally classified highway system is currently being revised statewide. The current functionally classified system generally defines the higher traffic roads, so only minor additions or changes will be required.



Figure 2-2: Existing State and Federal Routes Functional Classification



## 2.5 Bridges

There are nineteen bridges on the state system located in the study area that could be eligible for federal bridge maintenance, rehabilitation, or replacement funds. Bridges are maintained and minor repairs made with maintenance funds. A bridge is rehabilitated or replaced as it deteriorates over time and as traffic volumes increase. (Figure 10 Bridge Sufficiency Rating)

Table 2-1 compares the bridges in the study area and identifies their sufficiency rating and location. Sufficiency rating indicates current condition of the structure with a rating of 100 showing a structure that is in excellent shape. A rating nearing 50 will reveal a structure that is in need of attention and is eligible for federal funding.

Table 2-1. Bridges

Number	Location	Maximum Span	No. Lanes & Road Width	Sidewalk	Sufficiency Rating
C-144	Union Pacific / SR-19	15.2m	2 Tracks, 5.9m	No	N/A *
4F-174	WBL I-70 4.5 mi West of Green River	60.7m	2 lanes, 12.6m	No	92.9
2F-174	EBL, I-70 4.5 mi West of Green River	60.7m	2 lanes, 13.0m	No	92.9
E-1765	1.8 mi West of Green River (Box Culver)	244 m	4 lanes, 7.0m	No	80.0
4F-452	WBL, I-70 / SR-19 Interchange	28.7m	2 lanes, 13.5m	No	97.8
2F-452	EBL, I-70 / SR-19 Interchange	28.7	2 lanes, 13.5m	No	97.8
4F-447	WBL, I-70 / County Road to Airport	29.9m	2 lanes, 13.5m	No	95.8
2F-447	EBL, I-70 / County Road to Airport	29.9m	2 lanes, 13.5m	No	95.8
E-2139	I-70 / Saleratus Canel ( Box Culvert)	24.4m	4 lanes, 3.4 m	No	79.8
4C-630	WBL, I-70 / Green River	175m	2 lanes, 13.5m	No	97.8
2C-630	EBL, I-70 / Green River	175m	2 lanes, 13.5m	No	97.8
4F-451	WBL, I-70 / Saleratus Wash	63.4m	2 lanes, 13.5m	No	97.8
2F-451	EBL, I-70 / Saleratus Wash	64.0m	2 lanes, 13.5m	No	97.8
4F-349	WBL, I-70 4 mi East of Green River	24.4m	2 lanes, 13.5m	No	95.9
2F349	EBL, I-70 4 mi East of Green River	24.4m	2 lanes, 13.5m	No	95.9
C-229	SR-19/ Green River	184.1m	2 lanes, 11.63m	Yes	81.4
F-420	SR-19 / Elgin Interchange	71.3m	2 lanes, 14.1m	No	98.5

F-417	SR-19 / Union Pacific Rail Road	53.6m	2 lanes, 14.1m	No	97.5
F-418	SR-19 / Browns Wash, 1 mi East of Green River	48.2m	2 lanes, 14.1m	No	98.5

*Bridge Sufficiency Rating – Figure 10*

Source: Utah Department of Transportation/Structures Division

\* Railroad Structure not currently eligible for Federal Bridge Rehab/Replacement funds due to railroad ownership.

\* Potential funding sources are currently being reviewed by UDOT officials for replacement of this structure.



**SR-19 Bridge over the Green River**

## **2.6 Traffic Counts**

Recent average daily traffic count data were obtained from UDOT. Table 2-2 shows the traffic count data on the key roadways of the study area. The number of vehicles in both directions that pass over a given segment of roadway in a 24-hour period is referred to as the average annual daily traffic (AADT) for that segment.

Figure 2-3: Bridge Sufficiency Rating

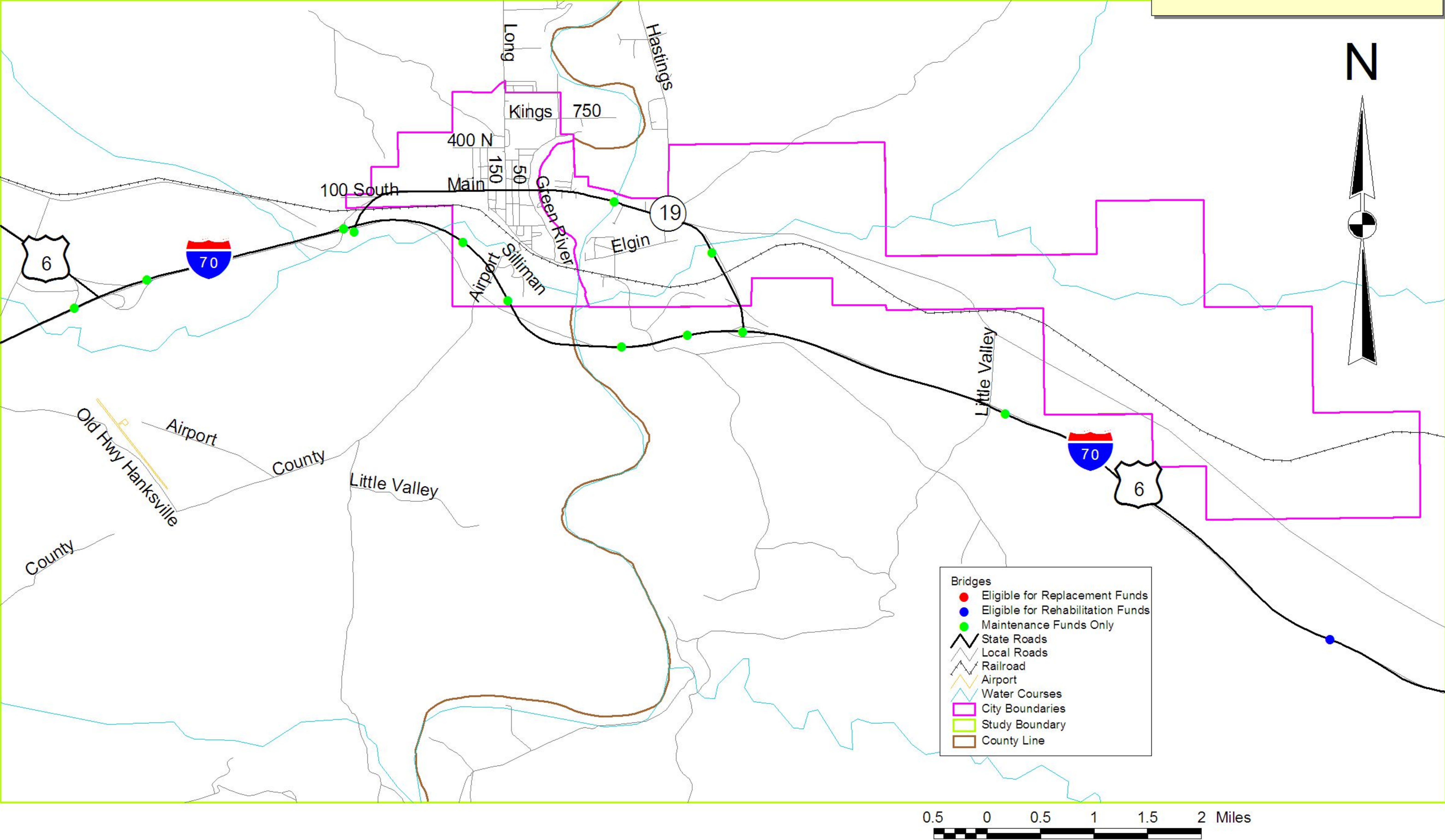


Table 2-2. Average Annual Daily Traffic

Road	Segment	Year	AADT
SR-6	Woodside- SR-70 West of Green River	2002	4,520
SR-19	West Incorporated City Limits Green River	2002	5,827
SR-19	Emery County / Grand County Line	2002	3,725
SR-19	East Incorporated Limits Green River- JCT I-70	2002	4,315
I-70	West Green River Interchange – Exit 158	2002	4,685
I-70	Emery County/ Grand County Line	2002	7,631
I-70	East Green River Interchange – Exit 162	2002	6,494

*Source: Utah Department of Transportation*

These are averages for the entire year. Green River City experiences a significant increase in traffic during the summer months. UDOT maintains 86 continuously operated automatic traffic recorders (ATR) throughout the state highway system. ATRs collect data continuously throughout the year in order to determine monthly, weekly, daily, and hourly traffic patterns. One ATR is located in or near the study area on US-6. The following points summarize the 2003 data from the ATR at this location.

Traffic on US-6; 0.7 Miles North of I-70, Green River @ MP 299.34 (Station 418)

- August was the highest volume month.
- January was the lowest volume month.
- The highest daily volumes occurred on Friday.
- The lowest daily volumes occurred on Tuesday.

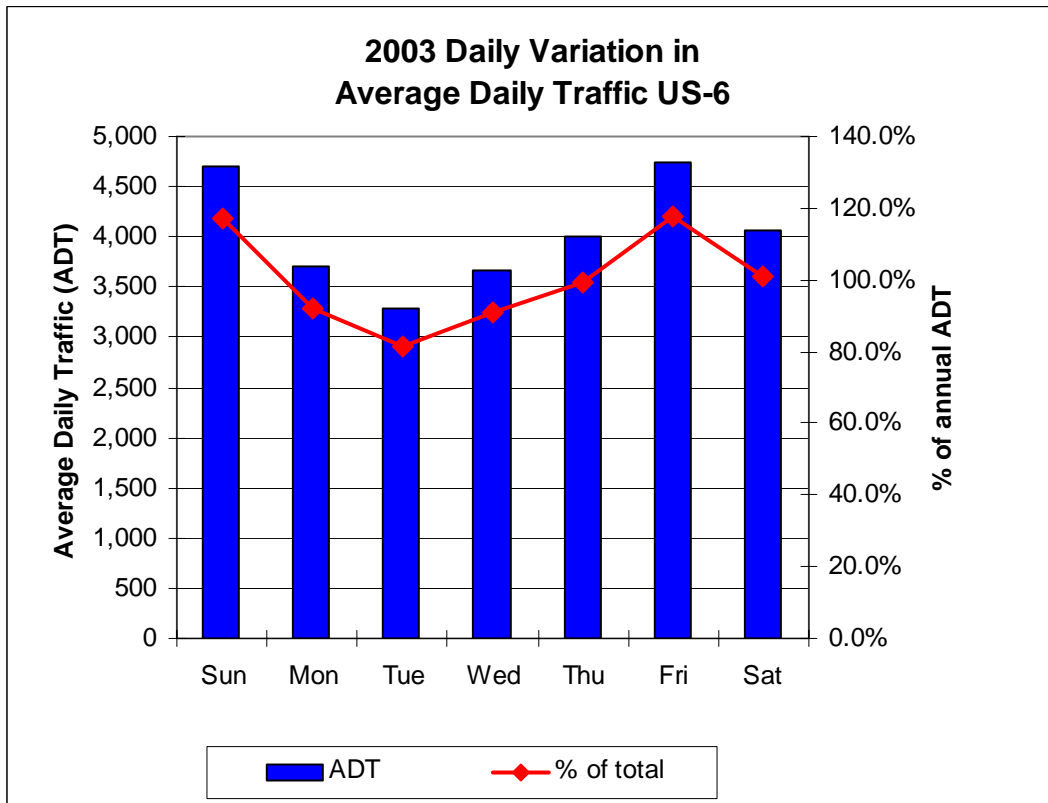
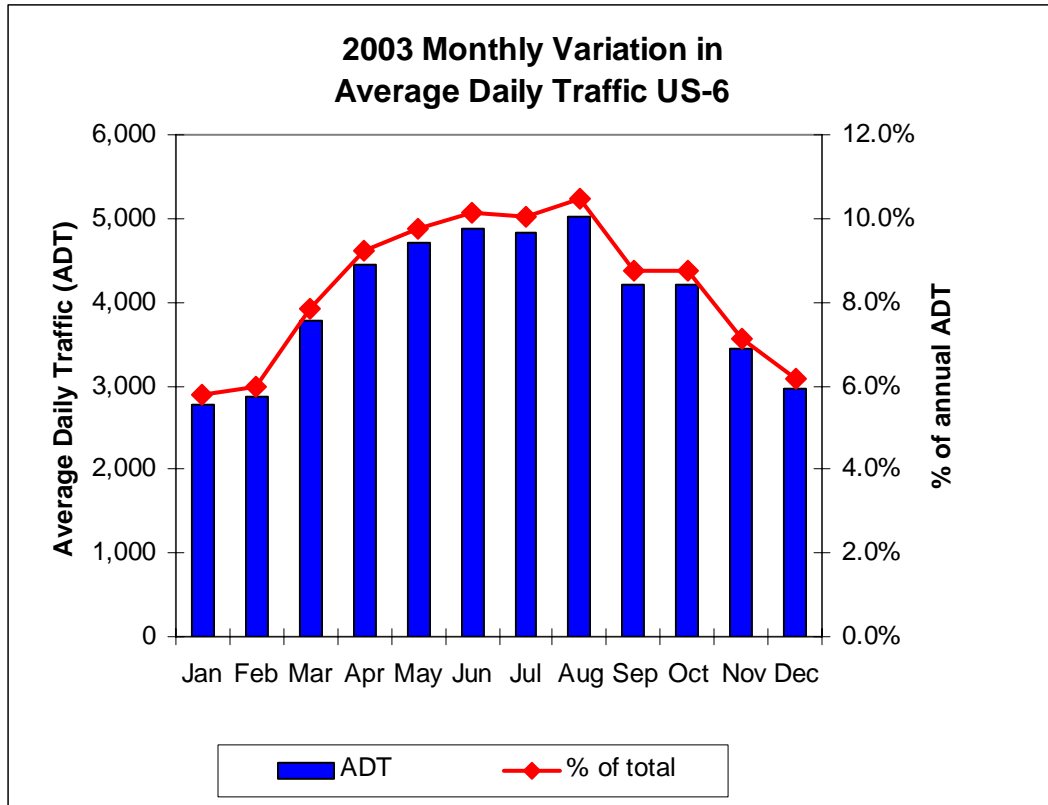
The peak months of May thru August are consistent with recreational usage associated with traffic traveling through the area on their way to Arches National Park, Canyonlands National Park and Moab.

The hourly traffic shows a clear average peak hour of around 3:00 TO 5:00 pm. This is consistent with an afternoon commuter peak.

A map illustrating existing and future traffic, peak season traffic, and roadway capacities is presented in the Traffic Forecast section 3.2.

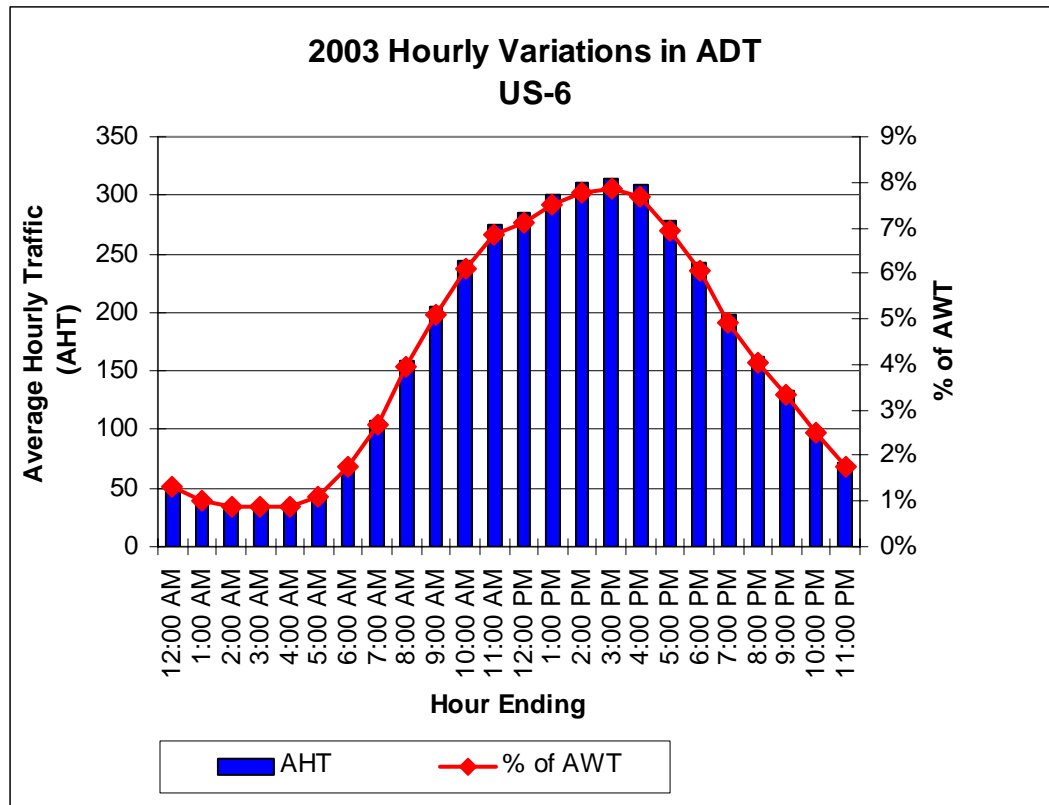


Figure 11 Monthly and Daily ADT on US-6



Source: Utah Department of Transportation

Figure 12 Hourly Variations on US-6



Source: Utah Department of Transportation

## 2.7 Traffic Accidents

Traffic accident data was obtained from UDOT's database of reported accidents from 2002. Table 3 summarizes the accident statistics for those segments for the year 2002. Additional information includes the average daily traffic, the number of reported accidents, and the accident rates. The roadway segment accident rates were determined in terms of accidents per million vehicle miles traveled. The crash rates for each roadway segment are compared to the expected crash rate for similar facilities across the state.

Upon review of the accident data for the state system in the area, there appears to be higher than expected accident rates at the following locations:

- On SR-19 from I-70 at west interchange under RR structure Green River for a distance of 0.24 miles
- On I-70 from MP158.29 to MP 164.05

The remainder of the state system shows a lower than expected accident rate. Figure 13 shows accident data taken from 1999-2001, which shows various segments of the state highway system and associated accident data.

Green River City may wish to review the accident history for the local street system to identify any specific accident hot spot locations.

Table 2-3. Crash Data 2002

Road	From Milepost	End Milepost	ADT (2002)	# Crashes (2002)	Crash Rate **	
					Actual	Expected*
6	286	289.12	4520	4	0.84	1.65
19	0	0.25	4070	1	3.16	2.28
19	0.26	1.97	5827	1	0.29	2.50
19	1.98	3.21	3725	2	1.26	2.28
19	3.22	4.58	4315	2	1.00	2.28
70	156	158.28	4875	3	0.81	1.82
70	158.29	164.05	7631	21	1.32	0.85
70	164.06	164.91	4685	1	0.72	1.82
70	164.92	173	6494	11	0.56	0.85

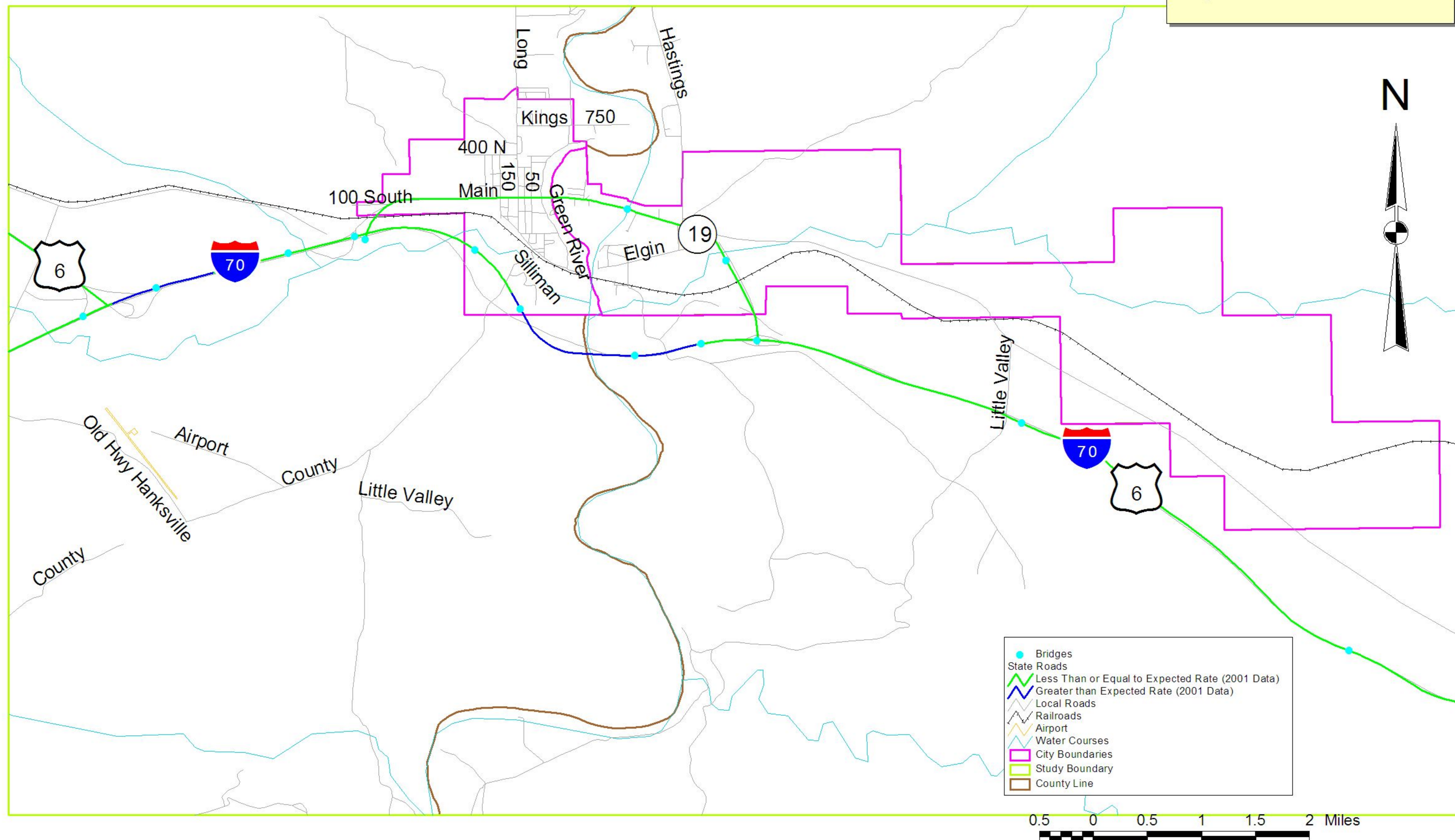
\* Statewide average accident rates for functional class and volume group.

\*\* Accident rates are per million vehicle miles traveled

Red indicates higher than expected rates of accidents



Figure 2-4: State Road Crash Rates



## **2.8 Bicycle and Pedestrian**

The Federal Highway Administration recognizes the increasingly important role of bicycling and walking in creating a balanced, intermodal transportation system, and encourages state and local governments to incorporate all necessary provisions to accommodate bicycle and pedestrian traffic. As Green River continues to grow, the City should consider alternative transportation modes by adopting a “complete streets” philosophy. This type of all-inclusive planning process will help to create a more bicycle-friendly and walkable community.

### **2.8.1 Biking/Trails**

The City currently does not have dedicated bike lanes on local or state roads and most roads throughout the City have inadequate shoulder-width to accommodate bicycle travel. These conditions create safety concerns for bicyclists and the community. The City does sweep the streets to keep them clear of dirt and debris; however due to the limited availability of personnel this task is completed as the need arises and not on a regularly scheduled basis.

Through the combined efforts of the City and the Bureau of Land Management (BLM), Green River residents have access to and are developing some off-street bicycle trails. Some of the suggested bicycle trails include one that would run from the east end of the city south to the railroad and west to Broadway. Another potential trail location suggestion is one that could run along the river to geyser.

Due to the rural nature of Green River there are a number of OHV enthusiasts within the community and the City would like to provide a means for these riders to safely travel on local roads. The City supports this activity as documented in the recently passed ordinance that allows OHV usage on local roads. Green River’s Main Street is a state highway which prohibits the use of OHV’s, thus at this location riders may only cross the street but are not allowed to ride on the roadway. Another item of concern is the safe passage of OHV’s at the Green River Bridge location. The City would like to expand the bridge in order to allow for OHV traffic. The current condition of the bridge only provides for the travel lanes and some pedestrian traffic.

There are a few bicycle touring groups that frequent the Green River area and the City would like to encourage this pursuit. Green River has benefited economically from those bicyclists participating in the yearly San Rafael Swell biking activity.

During the scoping process for this Plan, several ATV, biking, and pedestrian trail proposals were identified. These proposals include a possible bike trail linking Green River with Moab, a river crossing for ATV’s and bicycles, a river walk trail, and a community historical bicycle and walking loop.

### **2.8.2 Pedestrian**

Green River has a few sidewalks in place that provide for pedestrian traffic, most are in the downtown area. In order to create a more pedestrian-friendly community and create continuity in pedestrian traffic flow, the City desires to install additional sidewalk along Main Street. To date, other than the downtown locations, few sidewalks have been installed within the City. Where there is sidewalk there are some areas of placement that are in disrepair and need correcting in order to alleviate any safety concerns for pedestrians.

## **2.9 Public Transportation**

Although lacking scheduled airline service as well as a city bus system, Green River is a stop for both Greyhound and Amtrak. Greyhound provides intercity bus service on several routes, which make a rest stop at the Westwinds/Sinclair Truck Stop, located just east of downtown Green River on State Route 19.

Greyhound operates four buses in each direction daily that stop in Green River, three of which are on transcontinental routings. Two buses serve Green River en route to and from New York City and Los Angeles, while a third transcontinental run operates between Chicago and Los Angeles. All three of these daily cross-country bus schedules operate west of Denver on the I-70/I-15 corridor via Grand Junction, St George, and Las Vegas. The fourth bus route serving Green River is a daily run from Salt Lake City to El Paso via Grand Junction and Albuquerque. This latter bus is operated by Greyhound subsidiary Texas, New Mexico & Oklahoma Bus Lines south of Grand Junction.

The National Railroad Passenger Corporation (Amtrak) serves Green River via a stop on its daily “California Zephyr” passenger train, which operates both ways between Chicago and the San Francisco Bay Area. As the most scenic of Amtrak’s long-distance transcontinental routes, the “Zephyr” is scheduled to cross the Colorado Rocky Mountains as well as California’s Sierra Nevada Range during daylight hours in both directions, while crossing the



deserts and plains at night. This unique schedule has made the “California Zephyr” America’s most talked about train since the first “CZ” was inaugurated back in 1949.

Amtrak began operating the “Zephyr” over its current scenic route through Green River, Utah in 1983, having run the train across southern Wyoming prior to that time. Green River was an Amtrak stop for only a few months in 1983, after which Thompson, Utah was made the “Zephyr’s” eastern Utah stop. In 1987, the Thompson stop was discontinued and Amtrak returned service to Green River, which constructed a paved lit platform adjacent to the former Rio Grande station, which is today owned by the Union Pacific. Green River is investigating the feasibility of acquiring the former Rio Grande station in order to provide a waiting area for the region’s Amtrak passengers. Given the questionable future of Amtrak’s long distance trains, Green River may wish to investigate acquiring a temporary station facility such as a portable office trailer. A lack of taxicab service, rental cars, and a convenient shuttle to and from regional tourist attractions such as Moab and Canyonlands National Park limits the attractiveness of Green River to Amtrak, as well as Greyhound, passengers.

Currently, Amtrak’s “California Zephyr” is scheduled to stop in Green River eastbound at 8:36 AM and westbound at 6:14 PM. The “Zephyr” is equipped with double-deck Superliner cars and operates between Chicago and the San Francisco Bay Area via Omaha, Denver, Salt Lake City, Reno and Sacramento.

## **2.10 Freight**

**TRUCK:** Green River is not a large generator of highway or railroad freight, yet it is a major crossroads on the highway freight system of the western United States. Located just east of the junction of U.S. Highways 6 and 191 with Interstate Highway 70, Green River is literally the crossroads of eastern Utah. Located at the eastern end of the longest stretch of Interstate Highway in America without any services whatsoever, Green River has evolved into an important rest and refueling stop for transcontinental freight traffic on I-70.

Most long-distance truck traffic on I-70 is en route from the Midwest to Southern California via the connection with I-15 at Cove Fort, Utah, 155 miles to the west. Truck traffic is equally heavy on the US 6 / 191 corridor, which handles freight between the Southern states, the Gulf Coast, Texas, northeastern Mexico and the distribution facilities along Utah’s Wasatch Front, the Pacific Northwest, and Canada. This southeast to northwest routing has become a major component in CANAMEX freight traffic between Mexico and Canada as a result of the North American Free Trade Agreement (NAFTA). The lack of north/south crossings of the Colorado River between southern California and Colorado funnel considerable truck traffic through Green River and nearby Moab via US 191.

DATS Trucking of Hurricane, Utah maintains a small distribution operation adjacent to the Rio Grande/Amtrak station on the south side of downtown Green River. This facility handles freight arriving via I-70 and sends it north along US 6/191 to the Price/Carbon County area, and into southeastern Utah via US 191 through Moab.



The major challenge to truck access into Green River is the low (14 vertical foot clearance) and narrow underpass where SR 19 passes beneath the Union Pacific Railroad at the west end of town. This aging underpass is between I-70 and the Truck Stops in Green River, forcing tall or oversize trucks to exit I-70 at the east end of town and make a slow, time-consuming run through the middle of town to reach the Truck Stops.

With long stretches of desolate highway in all directions, Green River has the potential to see even more truck stop business, particularly when the aforementioned underpass clearance problem is addressed.

Future freight developments in Green River include a zoned industrial park area at the eastern end of the community approximately five miles from downtown. Northeast of the proposed industrial park the city hopes to develop a landfill facility that would serve non-hazardous solid waste arriving by both train and truck. Upgrading of 2.5 miles of old U.S. Highway 6 east from S.R. 19, or a new interchange one mile south of old U.S. 6 on I-70 would be required to serve both facilities. A spur track from the Union Pacific mainline to the solid waste facility would also be required.

**RAIL:** On March 30, 1883, the Denver & Rio Grande Western Railway, linking Denver with Salt Lake City, was completed at a location known as Desert Switch located about four miles east of Green River. For more than a century, the Rio Grande mainline was a major link in western America's railroad freight network.

In 1989, the Rio Grande merged with the much larger Southern Pacific Railroad and assumed the SP corporate identity. The former D&RGW mainline through Green River became a vital link in what SP termed its Central Corridor route between northern California and the

Midwest. On September 11, 1996, the SP was merged into the Union Pacific, and most through freight traffic on the Central Corridor line was rerouted to UP's less mountainous Overland Route mainline across southern Wyoming.

Since 1996, the railroad through Green River has moved mostly unit trains of coal from mines in Utah and Colorado. Union Pacific continues to operate a freight train for local on-line shippers between Roper Yard in Salt Lake City and the former Rio Grande freight yard in Grand Junction, Colorado.

As a condition of the 1996 UP/SP merger, the federal Surface Transportation Board (STB) directed the Burlington Northern Santa Fe Railway to operate a daily freight train to and from Provo, Utah from BNSF's large freight yard in Denver. This BNSF service does not impact local rail shippers in the Green River area and operates via trackage rights over UP's former SP/Rio Grande mainline.

Four days each week BNSF's Central Corridor freight train continues west of Provo to Stockton, California via Salt Lake City, Reno and Sacramento. When freight traffic congestion impacts BNSF lines in California, the railroad will occasionally send several freight trains each day east from northern California across Utah via the Central Corridor. However, these BNSF trains merely pass through Green River and do not serve local industries in eastern Utah.

## **2.11 Aviation Facilities & Operations**

At an elevation of 4,225 feet above sea level, the Green River Municipal Airport is located about seven miles southwest of the city at the end of Airport Road. A fairly recent facility, the current airport was opened in the early 1980's, replacing a smaller airfield located just west of downtown Green River.

The Green River Airport is equipped with a single paved runway, #13/31 that is 5600 feet long, 75 feet wide and paved with asphalt. Runway 13/31 is equipped with pilot-controlled lighting, while the taxiways have reflectors. Pilots can activate the runway lights by tuning their radio to 122.8 and clicking their mike seven times.

Although lacking a control tower, Green River is equipped with a dawn to dusk beacon light, as well as Precision Approach Path Indicator (PAPI) lighting. There is no automated weather information or instrument landing system available at Green River. Green River has two paved helipads for helicopters and paved parking and tie-downs for up to 20 aircraft. Fuel and light aircraft maintenance is provided by Fixed-Base Operator (FBO) Green River Aviation, which distributes Jet-A and 100 Low Lead aviation fuels.

Future plans for the Green River Airport call for the construction of a partial parallel taxiway to the end of runway #13, to go along with the existing partial parallel taxiway which extends to the end of runway #31. This taxiway project is tentatively scheduled for construction in 2006.

## 2.12 Revenue

Maintenance of existing transportation facilities and construction of new facilities come primarily from revenue sources that include the Green River City general fund, federal funds and State Class C funds.

Financing for local transportation projects consists of a combination of federal, state, and local revenues. However, this total is not entirely available for transportation improvement projects, since annual operating and maintenance costs must be deducted from the total revenue. In addition, the City is limited in their ability to subsidize the transportation budget from general fund revenues.

### 2.12.1 State Class B and C Program

The distribution of Class B and C Program monies is established by state legislation and is administered by the State Department of Transportation. Revenues for the program are derived from State fuel taxes, registration fees, driver license fees, inspection fees, and transportation permits. Twenty-five percent of the funds derived from the taxes and fees are distributed to cities and counties for construction and maintenance programs.

Class B and C funds are allocated to each city and county by the following formula: 50% based on the population ratio of the local jurisdiction with the population of the State, 50% based on the ratio that the Class B roads weighted mileage within each county and the class C roads weighted mileage within each municipality bear to the total class B and Class C roads weighted mileage within the state. Weighted means the sum of the following: (i) paved roads multiplied by five; (ii) graveled road miles multiplied by two; and (iii) all other road types multiplied by one. (Utah Code 72-2-108) For more information go to UDOT's homepage @ [www.udot.utah.gov](http://www.udot.utah.gov), tab on "Doing Business" select the tab for "Local Government Assistance" here you will find the Regulations governing Class B&C funds

The table below identifies the ratio used to determine the amount of B and C funds allocated.

Apportionment Method of Class B and C Funds

Based on	Of
50%	Roadway Mileage *Based on Surface Type Classification (Weighted Measure) Paved Road (X 5) Graveled Road (X 2) Other Road (X 1)
50%	Total Population

Class B and C funds can be used for maintenance and construction of highways, however thirty percent of the funds must be used for construction or maintenance projects that

exceed \$40,000. Class B and C funds can also be used for matching federal funds or to pay the principal, interest, premiums, and reserves for issued bonds.

Green River City received \$63,177.33 in 2003 for its Class C fund allocation.

### **2.12.2 Federal Funds**

There are federal monies that are available to cities and counties through federal-aid programs. The funds are administered by the Utah Department of Transportation. In order to be eligible, a project must be listed on the five-year Statewide Transportation Improvement Program (STIP).

The Surface Transportation Program (STP) provides funding for any road that is functionally classified as a collector street or higher. STP funds can be used for a range of projects including rehabilitation and new construction. The Joint Highway Committee programs a portion of the STP funds for projects around the State for urban areas. A portion of the STP funds can be used in any area of the State, at the discretion of the State Transportation Commission.

Transportation Enhancement funds are allocated based on a competitive application process. The Transportation Enhancement Advisory Committee reviews the applications and then a portion of those are recommended to the State Transportation Commission for funding. Transportation enhancements include 12 categories ranging from historic preservation, to bicycle and pedestrian facilities, to water runoff mitigation. Other funds that are available are State Trails Funds, administered by the Division of Wildlife Resources.

The amount of money available for projects specifically in the study area varies each year depending on the planned projects in UDOT's Region Four. As a result, federal aid program monies are not listed as part of the study area's transportation revenue.

### **2.12.3 Local Funds**

Green River City, like most cities, has utilized general fund revenues in its transportation program. Other options available to improve the City's transportation facilities could involve some type of bonding arrangement, either through the creation of a redevelopment district or a special improvement district. These districts are organized for the purpose of funding a single, specific project that benefits an identifiable group of properties. Another source of funding is through general obligation bonding arrangements for projects felt to be beneficial to the entire entity issuing the bonds.

#### **2.12.4 Private Sources**

Private interests often provide alternative funding for transportation improvements. Developers construct the local streets within the subdivisions and often dedicate right-of-way and participate in the construction of collector or arterial streets adjacent to their developments. Developers can be considered as an alternative source of funds for projects because of the impacts of the development, such as the need for traffic signals or street widening. Developers should be expected to mitigate certain impacts resulting from their developments. The need for improvements, such as traffic signals or street widening can be mitigated through direct construction or impact fees.



### 3. Future Conditions

#### 3.1. Land Use and Growth

Green River City's Transportation Master Plan must be responsive to current and future needs of the area. The area's growth must be estimated and incorporated into the evaluation and analysis of future transportation needs. This is done by:

- Forecasting future population, employment, and land use;
- Projecting traffic demand;
- Forecasting roadway travel volumes;
- Evaluating transportation system impacts;
- Documenting transportation system needs; and
- Identifying improvements to meet those needs.

This chapter summarizes the population, employment, and land use projections developed for the project study area. Future traffic volumes for the major roadway segments are based on projections utilizing 20 years of traffic count history. The forecasted traffic data are then used to identify future deficiencies in the transportation system.

##### 3.1.1 Population and Employment Forecasts

The Governor's Office of Planning and Budget develop population and employment projections. The current population and employment levels, as well as the future projections for each are shown for Green River City and Emery County in the following table.

Population and Employment

Year	City	County	
	Population	Population	Employment
2000	889	10,395	5,025
2030	1090	12,984	6,367

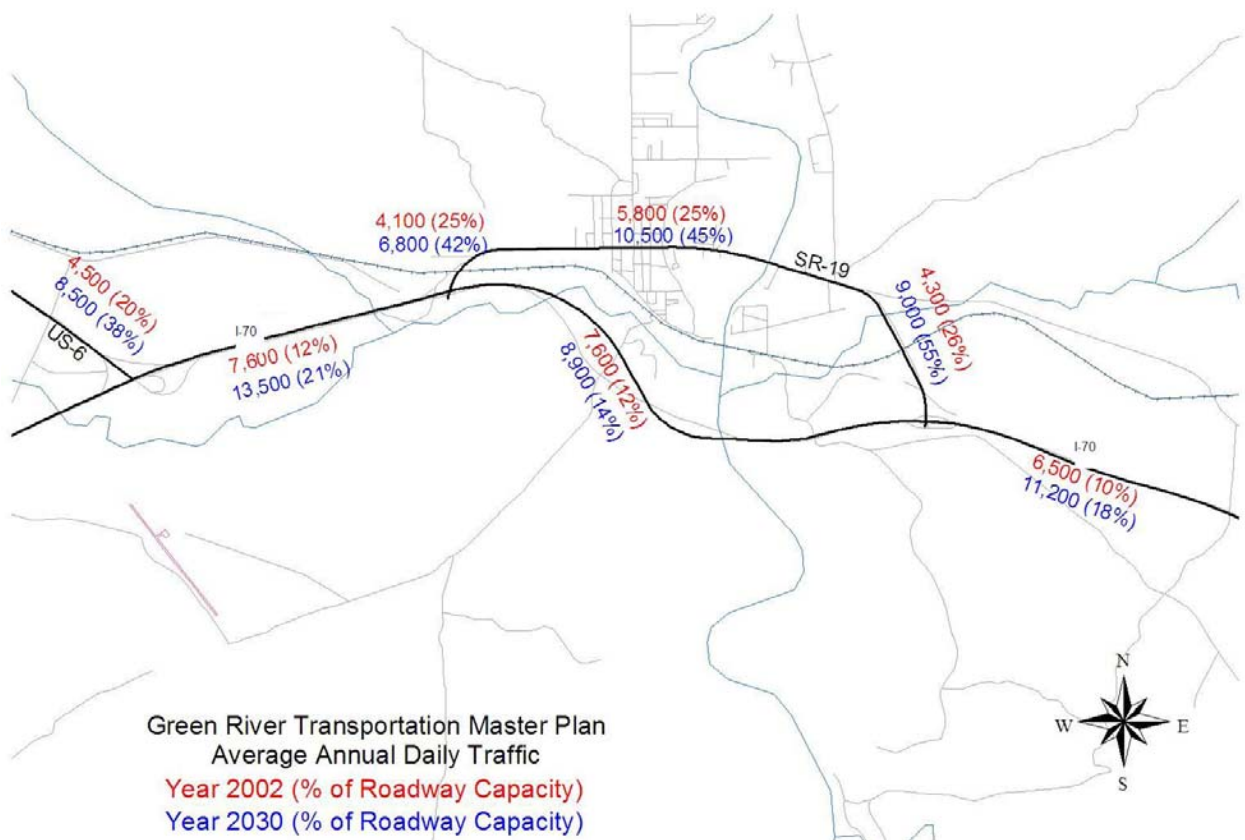
##### 3.1.2 Future Land Use

The City has an annexation plan that describes where it plans to grow. Some areas for developments were discussed during the course of the Transportation Master Plan. Updated Land Use documents can be found in the Green River City General Plan.

While specific development plans change with time, it is important to note possible areas of development within the Garden area. Commercial and industrial growth is also important in understanding transportation needs.

### 3.2 Traffic Forecast

Traffic in the Green River area is growing and will continue to grow. Although the population projections from the Governors Office of Planning and Budget show a 0.7% annual growth, traffic has historically grown at about 2% to 3%. This traffic growth is associated with the highway services that Green River provide to Interstate 70 and US-6. It is estimated that traffic volumes on downtown Main Street will grow about 2.5% per year. The map below shows average annual daily traffic for years 2002 and 2030. Also shown is the percentage of the roadway capacity the traffic will reach. The map illustrates that no corridors should have capacity issues by the year 2030 if historical trends continue.



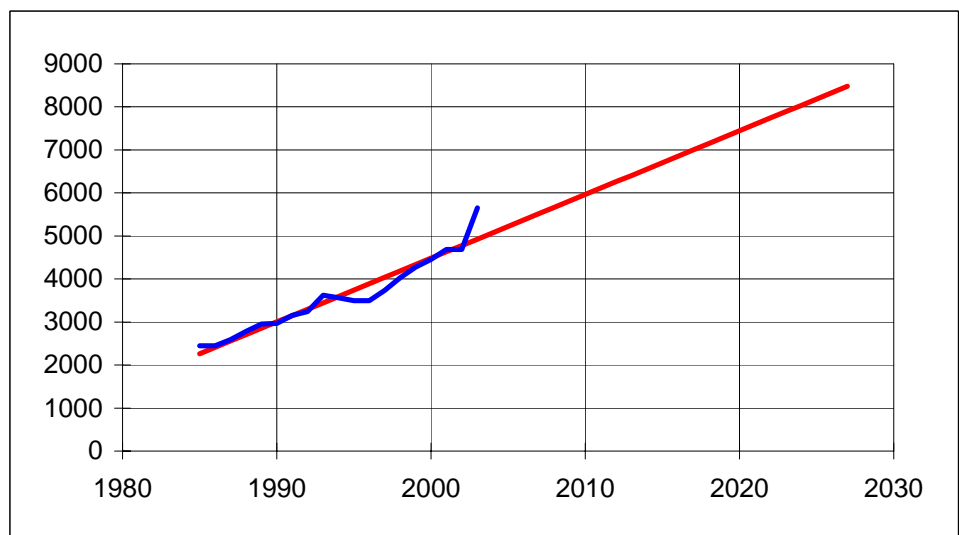
Next Seven Pages are Traffic Projections



Route Interstate 70  
 Limits East of Green River  
(Between East and West Interchanges)

Year	AADT	Forecast
1985	2,450	2261
1986	2,450	2409
1987	2,585	2557
1988	2,785	2705
1989	2,950	2853
1990	2,965	3002
1991	3,155	3150
1992	3,245	3298
1993	3,625	3446
1994	3,565	3594
1995	3,495	3742
1996	3,495	3890
1997	3,735	4038
1998	4,035	4186
1999	4,275	4334
2000	4,454	4482
2001	4,685	4630
2002	4,685	4779
2003	5,650	4927
2004		5075
2005		5223
2006		5371
2007		5519
2008		5667
2009		5815
2010		5963
2011		6111
2012		6259
2013		6408
2014		6556
2015		6704
2016		6852
2017		7000
2018		7148
2019		7296
2020		7444
2021		7592
2022		7740
2023		7888
2024		8036
2025		8185
2026		8333
2027		8481

Projection based on 1985 to 2003 data  
 3.2% growth rate → 148 vehicles/year



5% Trucks

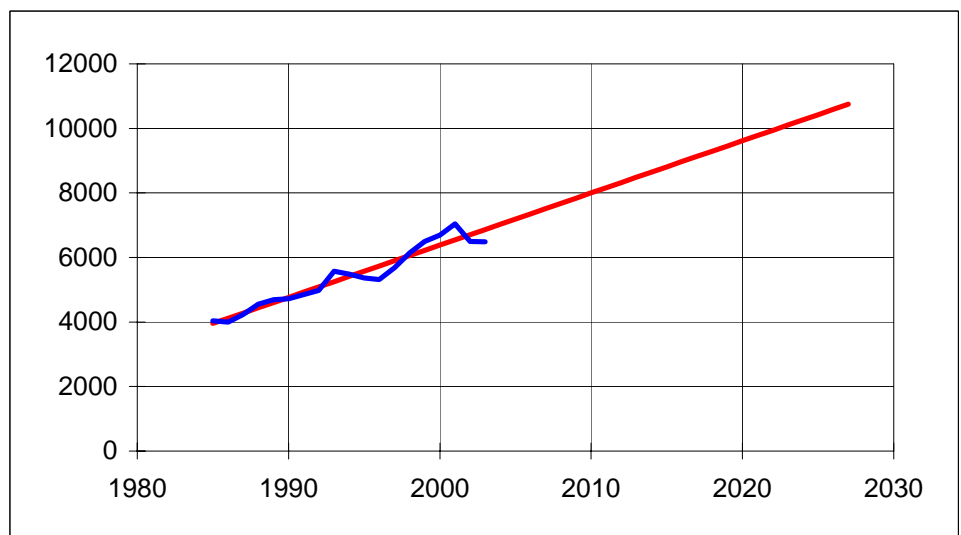
Notes



Route Interstate 70  
 Limits East of Green River  
(East of East Interchange)

Year	AADT	Forecast
1985	4,035	3955
1986	4,000	4117
1987	4,230	4279
1988	4,550	4441
1989	4,695	4603
1990	4,720	4764
1991	4,845	4926
1992	4,980	5088
1993	5,570	5250
1994	5,480	5412
1995	5,370	5573
1996	5,315	5735
1997	5,680	5897
1998	6,135	6059
1999	6,500	6220
2000	6,690	6382
2001	7,040	6544
2002	6,494	6706
2003	6,490	6868
2004		7029
2005		7191
2006		7353
2007		7515
2008		7677
2009		7838
2010		8000
2011		8162
2012		8324
2013		8485
2014		8647
2015		8809
2016		8971
2017		9133
2018		9294
2019		9456
2020		9618
2021		9780
2022		9941
2023		10103
2024		10265
2025		10427
2026		10589
2027		10750

Projection based on 1985 to 2003 data  
 2.5% growth rate → 162 vehicles/year



5% Trucks

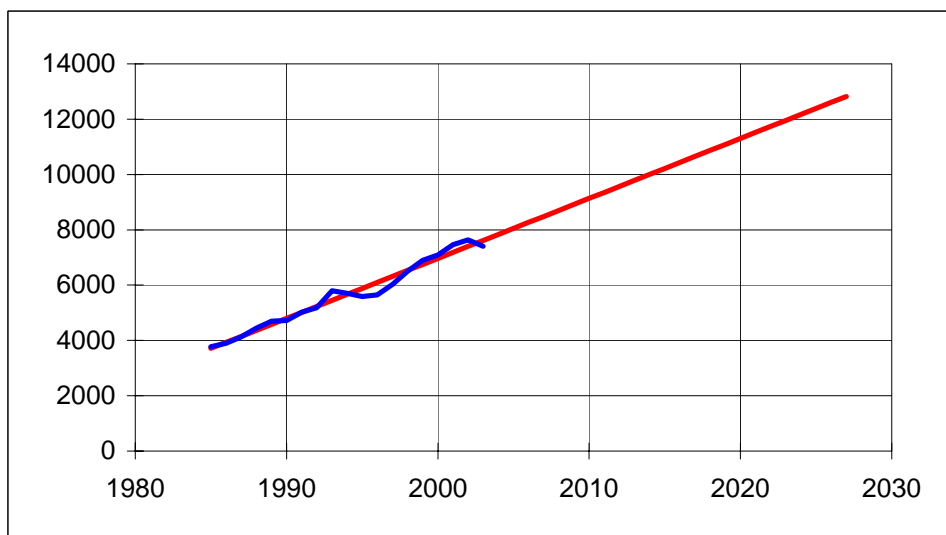
Notes



Route Interstate 70  
 Limits West of Green River  
(Between Green River and US-6 Junction)

Year	AADT	Forecast
1985	3,770	3711
1986	3,900	3928
1987	4,125	4145
1988	4,440	4362
1989	4,700	4579
1990	4,725	4796
1991	5,025	5013
1992	5,180	5230
1993	5,795	5447
1994	5,700	5664
1995	5,590	5881
1996	5,645	6098
1997	6,030	6315
1998	6,506	6532
1999	6,896	6749
2000	7,095	6966
2001	7,463	7183
2002	7,631	7400
2003	7,402	7617
2004		7834
2005		8051
2006		8268
2007		8485
2008		8702
2009		8919
2010		9136
2011		9353
2012		9570
2013		9787
2014		10004
2015		10221
2016		10438
2017		10655
2018		10872
2019		11088
2020		11305
2021		11522
2022		11739
2023		11956
2024		12173
2025		12390
2026		12607
2027		12824

Projection based on 1985 to 2003 data  
 3.0% growth rate → 217 vehicles/year



5% Trucks

Notes



Route

SR-19

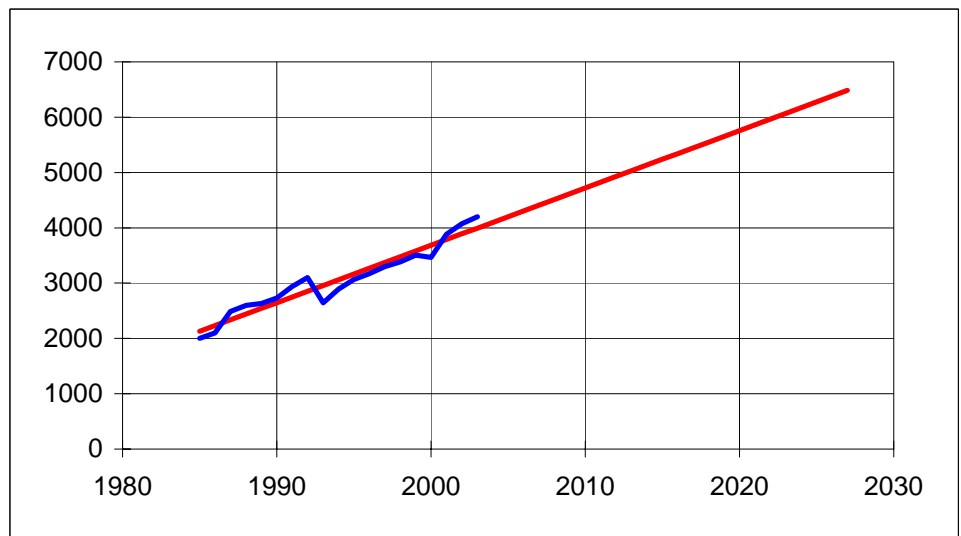
Limits

from West I-70 to Green River

(West of Downtown)

Year	AADT	Forecast
1985	2,000	2128
1986	2,100	2232
1987	2,490	2335
1988	2,595	2439
1989	2,635	2543
1990	2,730	2646
1991	2,940	2750
1992	3,100	2854
1993	2,645	2957
1994	2,890	3061
1995	3,065	3165
1996	3,170	3268
1997	3,295	3372
1998	3,385	3476
1999	3,505	3580
2000	3,465	3683
2001	3,880	3787
2002	4,070	3891
2003	4,200	3994
2004		4098
2005		4202
2006		4305
2007		4409
2008		4513
2009		4616
2010		4720
2011		4824
2012		4928
2013		5031
2014		5135
2015		5239
2016		5342
2017		5446
2018		5550
2019		5653
2020		5757
2021		5861
2022		5964
2023		6068
2024		6172
2025		6276
2026		6379
2027		6483

Projection based on 1985 to 2003 data  
2.7% growth rate → 104 vehicles/year



5% Trucks

Notes



Route

SR-19

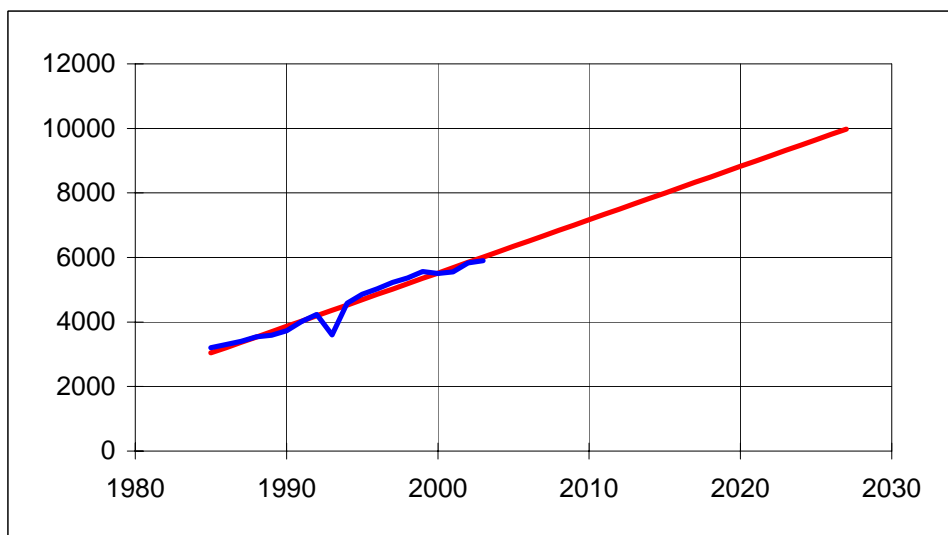
Limits

from Green River to east I-70

(Downtown Green River)

Year	AADT	Forecast
1985	3,200	3040
1986	3,300	3205
1987	3,400	3370
1988	3,545	3536
1989	3,595	3701
1990	3,725	3866
1991	4,015	4031
1992	4,235	4197
1993	3,600	4362
1994	4,580	4527
1995	4,860	4692
1996	5,025	4857
1997	5,225	5023
1998	5,366	5188
1999	5,560	5353
2000	5,500	5518
2001	5,555	5684
2002	5,827	5849
2003	5,900	6014
2004		6179
2005		6345
2006		6510
2007		6675
2008		6840
2009		7006
2010		7171
2011		7336
2012		7501
2013		7667
2014		7832
2015		7997
2016		8162
2017		8328
2018		8493
2019		8658
2020		8823
2021		8989
2022		9154
2023		9319
2024		9484
2025		9650
2026		9815
2027		9980

Projection based on 1985 to 2003 data  
2.9% growth rate → 165 vehicles/year



5% Trucks

Notes



Route

SR-19

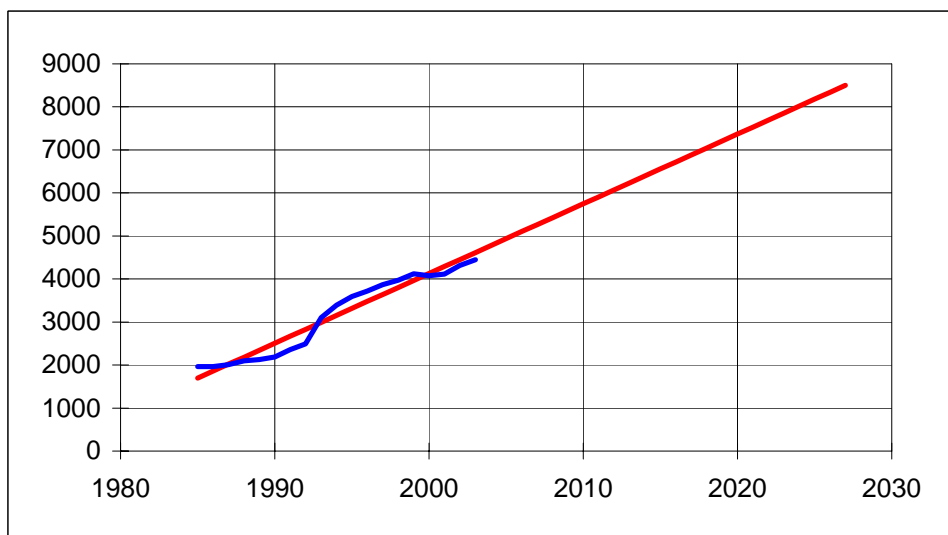
Limits

from Green River to east I-70

(East of Downtown)

Year	AADT	Forecast
1985	1,965	1696
1986	1,965	1858
1987	2,010	2020
1988	2,095	2182
1989	2,125	2344
1990	2,190	2506
1991	2,360	2668
1992	2,490	2830
1993	3,105	2992
1994	3,390	3154
1995	3,595	3316
1996	3,720	3478
1997	3,870	3640
1998	3,975	3802
1999	4,120	3965
2000	4,075	4127
2001	4,115	4289
2002	4,315	4451
2003	4,450	4613
2004		4775
2005		4937
2006		5099
2007		5261
2008		5423
2009		5585
2010		5747
2011		5909
2012		6071
2013		6233
2014		6395
2015		6558
2016		6720
2017		6882
2018		7044
2019		7206
2020		7368
2021		7530
2022		7692
2023		7854
2024		8016
2025		8178
2026		8340
2027		8502

Projection based on 1985 to 2003 data  
3.8% growth rate → 162 vehicles/year



5% Trucks

Notes



Route

US-6

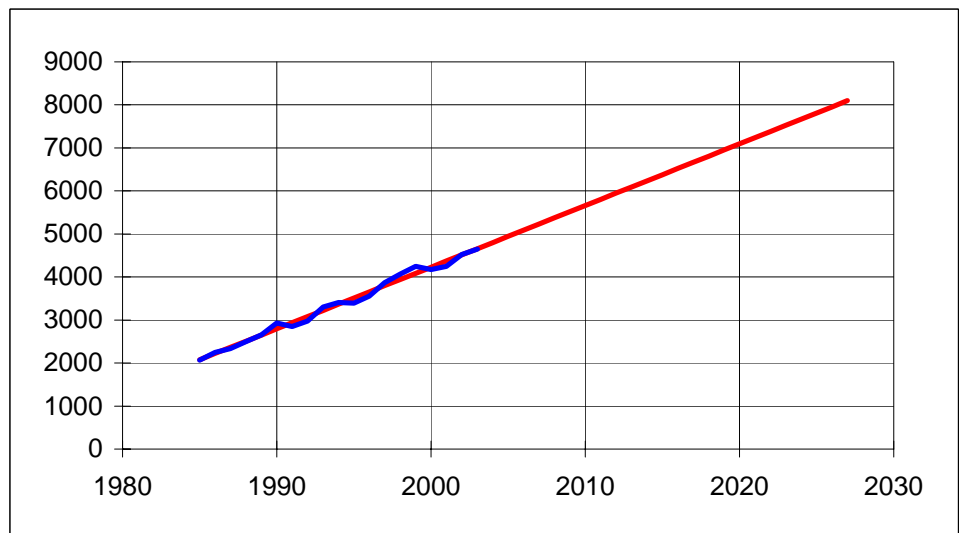
Limits

North of I-70 Junction

(Northwest of Green River)

Year	AADT	Forecast
1985	2,065	2077
1986	2,245	2221
1987	2,335	2364
1988	2,500	2507
1989	2,655	2651
1990	2,930	2794
1991	2,850	2937
1992	2,975	3081
1993	3,300	3224
1994	3,410	3367
1995	3,390	3511
1996	3,555	3654
1997	3,865	3797
1998	4,065	3941
1999	4,245	4084
2000	4,175	4227
2001	4,250	4371
2002	4,520	4514
2003	4,650	4657
2004		4801
2005		4944
2006		5087
2007		5231
2008		5374
2009		5518
2010		5661
2011		5804
2012		5948
2013		6091
2014		6234
2015		6378
2016		6521
2017		6664
2018		6808
2019		6951
2020		7094
2021		7238
2022		7381
2023		7524
2024		7668
2025		7811
2026		7954
2027		8098

Projection based on 1985 to 2003 data  
3.3% growth rate → 143 vehicles/year



5% Trucks

Notes

## **4.0 Planning Issues and Guidelines**

Provided below is a discussion of various issues with a focus on elements that promote a safe and efficient transportation system in the future.

### **4.1 Guidelines and Policies**

These guidelines address certain areas of concern that are applicable to Green River City Transportation Master Plan.

#### **4.1.1 Access Management**

This section will define and describe some of the aspects of Access Management for roadways and why it is so important. Access Management can make many of the roads in a system work better and operate more safely if properly implemented. There are many benefits to properly implemented access management. Some of the benefits follow:

- Reduction in traffic conflicts and accidents
- Reduced traffic congestion
- Preservation of traffic capacity and level of service
- Improved economic benefits businesses and service agencies
- Potential reductions in air pollution from vehicle exhausts

##### **4.1.1.1 Definition**

Access management is the process of comprehensive application of traffic engineering techniques in a manner that seeks to optimize highway system performance in terms of safety, capacity, and speed. Access Management is one tool of many that makes a traffic system work better with what is available.

##### **4.1.1.2 Access Management Techniques**

There are many techniques that can be used in access management. The most common techniques are signal spacing, street spacing, access spacing, and interchange to crossroad access spacing. There are various distances for each spacing, dependant upon the roadway type being accessed and the accessing roadway. UDOT has developed an access management program and more information can be gathered from the UDOT website and from the Access Management Program Coordinator.

##### **4.1.1.3 Where to Use Access Management**

Access Management can be used on any roadway. In some cases, such as State Highways, access management is a requirement. Access management can be used as an inexpensive way to improve performance on a major roadway that is increasing in volume. Access management should be used on new roadways and roadways that are to be improved so as to prolong the usefulness of the roadway.

## **4.2 Context Sensitive Solutions**

Context Sensitive Solutions (CSS) addresses the need, purpose, safety and service of a transportation project, as well as the protection of scenic, aesthetic, historic, environmental and other community values. CSS is an approach to transportation solutions that find, recognize and incorporate issues/factors that are part of the larger context such as the physical, social, economic, political and cultural impacts. When this approach is used in a project the project become better for all of the entities involved.

### **4.2.1 Recommended Roadway Cross Sections**

Cross sections are the combination of the individual design elements that constitute the design of the roadway. Cross section elements include the pavement surface for driving and parking lanes, curb and gutter, sidewalks and additional buffer/landscape areas. Right-of-way is the total land area needed to provide for the cross section elements.

The design of the individual roadway elements depends on the intended use of the facility. Roads with higher design volumes and speeds need more travel lanes and wider right-of-way than low volume, low speed roads. The high use roadway type should include wider shoulders and medians, separate turn lanes, dedicated bicycle lanes, elimination of on street parking, and control of driveway access. For most roadways, an additional buffer area is provided beyond the curb line. This buffer area accommodates the sidewalk area, landscaping, and local utilities. Locating the utilities outside the traveled way minimizes traffic disruption in utility repairs or changes in service are needed.

Federal Highway standard widths apply on the all roads that are part of the state highway system. Also, all federally funded roadways in Garden City and Rich County must adhere to the same standards for widths and design.

## **4.3 Bicycles and Pedestrians**

### **4.3.1 Bicycles/Trails**

Bicycles are allowed on all roadways, except where legally prohibited, and as such should be a consideration on all roads that are being designed and constructed, and as roadway improvements are taking place. To increase the level of interest in bicycling in the Green River area, the City should encourage developers to include separate bicycle/pedestrian pathways in all new developments. Opportunities to include bike lanes and increased shoulder-width in conjunction with a roadway project should be taken whenever technically, environmentally, and financially feasible.

The City is encouraged to proceed with plans to develop off-street bicycle trails and investigate options to include safe OHV passage along the river bridge, as detailed in Chapter 2 of this Plan. As all new trails systems are planned, designed, and constructed, it is important to note that connectivity of the trails should be a consideration. With input from the community, a review of the connectivity of the trails should play an integral role in the decision making process for potential projects. In order to enhance the quality of

life for those in the community, the trails should be accessible to all users and incorporate ADA requirements.

The trails, when constructed, may have slight variances in application type due to possible differences in the terrain at a specific trail location or differing user needs. However, regardless of the design type, the applicable design standards found in the latest version of the AASHTO Guide for the Development of Bicycle Facilities should be followed, as well as the Manual on Uniform Traffic Control Devices (MUTCD) guidelines for appropriate signage of the trails system.

#### **4.3.2 Pedestrians**

Every effort should be made to accommodate pedestrians throughout the city of Green River. The City should move forward with completion of sidewalk placement along Main Street, as referred to in Chapter 2 of this Plan. An opportunity to include accessible sidewalks, while adhering to ADA requirements, during construction of other projects is encouraged. For the safety and convenience of pedestrian traffic, sidewalk placement should be free from debris and obstructions or impediments such as utility poles, trees, bushes, etc. The City should conduct a sidewalk inventory to document locations where there may be gaps or safety concerns in the sidewalk system. Effort should then be made to construct and complete the sidewalks where gaps or problems occur. The City should require developers to include sidewalk placement or improvements in their respective project plans. The interconnectedness of the City's sidewalk system should be considered as development takes place.

Sidewalks in residential areas should be at least 5-feet wide whenever adequate right-of-way can be secured. This will provide sufficient room and a level of comfort to persons walking in pairs or passing and will specifically allow for persons with strollers or in wheelchairs to pass. On major roadways, sidewalks at least 6-feet wide and with a 6 to 10-foot park strip are desirable. In pedestrian-focused areas, such as schools, parks, sports venues or theaters, and in hotel and market districts, even wider sidewalks are recommended to accommodate and encourage a higher level of pedestrian activity, especially where tourist use would be expected. To ensure consistency of sidewalks throughout the area, UDOT's approved standard for sidewalks should be followed.

There may be opportunity for Green River to make improvements to their sidewalk system through the Utah Department of Transportation's Safe Sidewalk Program, available through the Traffic and Safety Division. The City should contact UDOT's Price District and/or the UDOT Region 4 office for application requirements.

The City should be aware of, and coordinate with, the area schools that are tasked with developing a routing plan to provide a safe route to school. The routing plan is to be reviewed and updated annually. Information regarding the Safe Routes to School program is available by contacting the Utah Department of Transportation's Traffic and Safety Division.

### **4.3 Enhancements Program**

In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) created the Transportation Enhancement program. The program has since been reauthorized in subsequent bills (i.e. TEA-21). The Transportation Enhancement program provides opportunities to use federal dollars to enhance the cultural and environmental value of the transportation system. These transportation enhancements are defined as follows by TEA-21:

The term ‘transportation enhancement activities’ means, with respect to any project or the area to be served by the project, any of the following activities if such activity relates to surface transportation: provision of facilities for pedestrians and bicycles, provision of safety and educational activities for pedestrians and bicyclists, acquisition of scenic easements and scenic or historic sites, scenic or historic highway programs (including the provision of tourist and welcome center facilities), landscaping and other scenic beautification, historic preservation, rehabilitation and operation of historic transportation buildings, structures, or facilities (including historic railroad facilities and canals), preservation of abandoned railway corridors (including the conservation and use thereof for pedestrian or bicycle trails), control and removal of outdoor advertising, archeological planning and research, environmental mitigation to address water pollution due to highway runoff or reduce vehicle caused wildlife mortality while maintaining habitat connectivity, and establishment of transportation museums.

The Utah Transportation Commission, with the help of an advisory committee, decides which projects will be programmed and placed on the Statewide Transportation Improvement Program (STIP). Applications are accepted in an annual cycle for the limited funds available to UDOT for such projects. Information and Applications for the current cycle can be found on UDOT’s homepage @ [www.udot.utah.gov](http://www.udot.utah.gov), tab on “Doing Business” select “Planning and Programming”, here you will find a sub-topic entitled “Transportation Enhancement Program”. Applications must be received by the UDOT Program Development Office, on or before the specified date to be considered. Projects will compete on a statewide basis.

### **4.4 Transportation Corridor Preservation**

Transportation Corridor Preservation will be introduced as a method of helping Green River’s Transportation Master Plan. This section will define what Corridor Preservation is and ways to use it to help the Transportation Master Plan succeed for the City.

#### **4.4.1 Definition**

Transportation Corridor Preservation is the reserving of land for use in building roadways that will function now and can be expanded at a later date. It is a planning tool that will reduce future hardships on the public and the city. The land along the corridor is

protected for building the roadway and maintaining the right-of-way for future expansion by a variety of methods, some of which will be discussed here.

#### **4.4.2 Corridor Preservation Techniques**

There are three main ways that a transportation corridor can be preserved. The three ways are acquisition, police powers, and voluntary agreements and government inducements. Under each of these are many sub-categories. The main methods will be discussed here, with a listing of some of the sub-categories.

##### **4.4.2.1 Acquisition**

One way to preserve a transportation corridor is to acquire the property outright. The property acquired can be developed or undeveloped. When the city is able to acquire undeveloped property, the city has the ability to build without greatly impacting the public. On the other hand, acquiring developed land can be very expensive and can create a negative image for the City. Acquisition of land should be the last resort in any of the cases for Transportation Corridor Preservation. The following is a list of some ways that land can be acquired.

- Development Easements
- Public Land Exchanges
- Private Land Trusts
- Advance Purchase and Eminent Domain
- Hardship Acquisition
- Purchase Options

##### **4.4.2.1 Exercise of Police Powers**

Police powers are those ordinances that are enacted by a municipality in order to control some of the aspects of the community. There are ordinances that can be helpful in preserving corridors for the Transportation Master Plan. Many of the ordinances that can be used for corridor preservation are for future developments in the community. These can be controversial, but can be initially less intrusive.

- Impact Fees and Exactions
- Setback Ordinances
- Official Maps or Maps of Reservation
- Adequate Public Facilities and Concurrency Requirements

##### **4.4.2.2 Voluntary Agreements and Governmental Inducements**

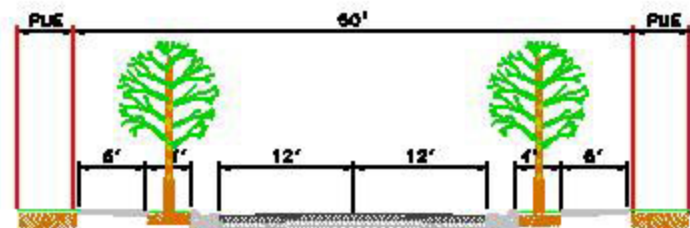
Voluntary agreements and governmental inducements rely on the good will of both the developers and the municipality. Many times it is a give and take situation where both parties could benefit in the end. The developer will likely have a better-developed area and the municipality will be able to preserve the corridor for transportation in and around the development. Listed below are some of the

voluntary agreements and governmental inducements that can be used in order to preserve transportation corridors in the city limits.

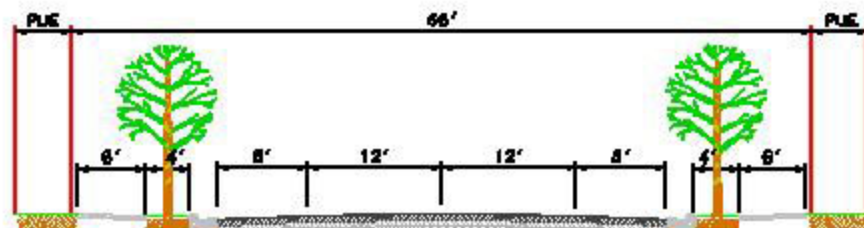
- Voluntary Platting
- Transfer of Development Rights
- Tax Abatement
- Agricultural Zoning

Each of these methods has its place, but there is an order that any government should try to use. Voluntary agreements and government inducements should be used, if possible, before any police powers are used. Police powers should be tried before acquisition is sought. UDOT has developed a toolkit to aid in corridor preservation techniques. This toolkit contains references to Utah code and examples of how the techniques have been used in the past.

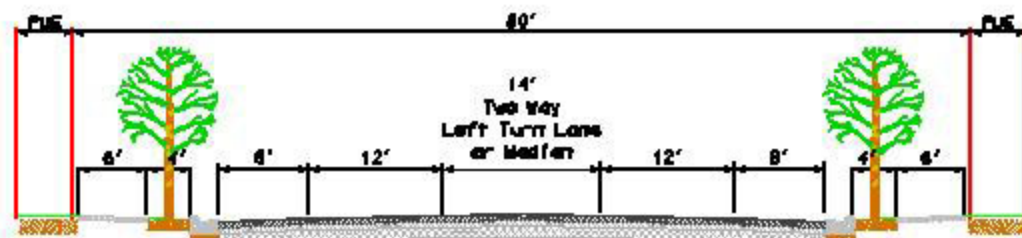




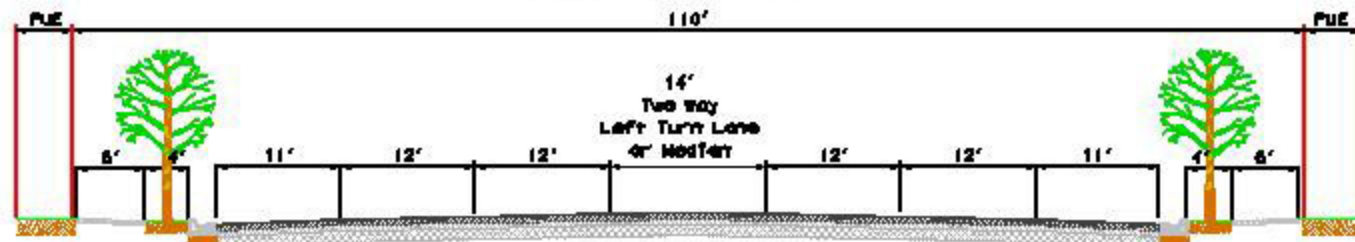
Two-Lane Cross Section  
24 feet MAXIMUM ASPHALT WIDTH



Two Lane Cross Section  
With Shoulders  
Spaced between Arterials



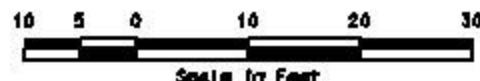
Three Lane Cross Section  
With Shoulder  
Spaced between Arterials



Five Lane Cross Section  
With Shoulder  
Minimum spacing approximately 1/4 mile

**Notes:**

1. Shoulder Dimension varies from 4' to 8' (See UDOT Std. Dev. 011 Note 3)
2. Public Utility Easement (PUE) dimension varies from 2.5' to 12' Typical
3. Shoulder Dimensions:  
on 60' ROW - varies from 8' to 12'  
on 110' ROW - varies from 10' to 12'  
See AASHTO & Policy on Geometric Design of Highways and Streets



**Suggested  
Typical cross Section**

Revised: September 16, 2004

## **5 Transportation Improvement Projects**

### **5.1 Current Statewide Transportation Improvement Program (2004-2008 STIP)**

At the present time there are several projects under consideration and investigation in the Green River City area. Currently in the STIP are the following Projects:

- Add Passing lanes along US-6 from Wellington to I-70

Also, these projects are currently listed on the State of Utah's Long Range Plan, Utah Transportation 2030:

- Reconstruction SR-19 (Green River) East I-70 Interchange to west I-70 Interchange
- Reconstruction and Bridge projects on SR-191 from RP 145.41 to I-70 near Green River
- Bridge Project from RP 163.35 on I-70 to RP 174.0

### **5.2 Recommended Projects**

The following list identifies the five projects that have been identified as having the highest priority to the Green River City Transportation Advisory Committee. These needs were identified through a series of meetings where the TAC identified the needs and set priorities for projects.

- Railroad overpass on the west end of SR-19,
- Reconstruction of SR-19 to lower the existing roadway under the railroad underpass and fix drainage issues if the overpass cannot be reconstructed in the near future,
- Provide an additional "No Services Ahead" on I-70 just prior to the west Green River entrance similar to Salina sign,
- Sidewalk along SR-19 from the State Park to the Green River bridge, and
- Connector access across SR-19 for golf carts when the golf is expanded in the near future.

Additionally, many concerns and issues were identified which are found on the attached list.

- Traffic calming on SR-19 for the school zone,
- Shuttle bus service from airport to Moab to hotels, to Amtrak, to the bus depot,
- Widen Green River bridge on SR-19,
- Drainage on SR-19 from the railroad overpass to I-70,
- Curb & Gutter on SR-19 for the entire distance of the road,
- Business loop signing on SR-19 & I-70,

- [illegible]

## Transportation Needs and Cost Estimates

Project Description / Concept			Length or Quantity	2004 Estimated Cost
State Highway Projects (LRP)	Start Point	End Point		
Reconstruct Railroad Bridge West end of town over SR-19				\$3,000,000
Lower SR-19 under the railroad bridge			2500 ft.	\$750,000
Connector across SR-19 for Golf Course				\$1,000,000
New I-70 Interchange for Industrial Park				\$6,000,000
New I-70 Interchange at Airport Road				\$6,000,000
Widen Green River Bridge on SR-19				\$6,000,000
Widen SR-19 to 5 lane section			4.5 miles	\$7,531,000
<b>State Highway Projects ( Operational )</b>				
"No services ahead" additional sign on I-70				\$2,500
Business loop signing on I-70 and SR-19				\$2,500
Interstate Directional signing along SR-19				\$2,500
Drainage project on SR-19	I-70	Railroad Bridge	1700 ft	\$150,000
Drainage project on SR-19 on 4-lane section	Rose St.	Green River Blvd.	4.5 Miles	\$500,000
Mile Post update along US-6 and I-70				\$5,000
Sign Castle Dale Cutoff on SR-6				\$2,500
<b>Local Highway Projects</b>				
Raise Airport Road & Drainage Problem	Rail Road	Silliman Lane		\$250,000
Billboard promoting Green River services on US-6				\$2,500
Interchange enhancement on west interchange				\$150,000
Interchange enhancement on east interchange				\$150,000
Improve Road out to Future Industrial Park, Landfill, etc.	SR-19	I-70	2.5 Miles	\$2,500,000
Improve Road	Industrial Interchge	Future Road	1 Mile	\$1,000,000
Historical information rest area within Green River				\$500,000
<b>Pedestrian/ Bicycle Projects</b>				
Historic bike/pedestrian trail loop	State Park	Hotels	5.5 Miles	\$600,000
Sidewalk on Green River Blvd	State Park	SR-19	1 Mile	\$150,000
ATV Bridge across Green River				\$2,000,000
Sidewalk on SR-19	State Park	Bridge	4100 ft.	\$50,000
Bike/Ped trail along Green River Ave.	Broadway	Bridge	1 Mile	\$110,000
Bike path on SR-19 (Asphalt)	I-70	I-70	4.5 Miles	\$500,000
River Walk			1 Mile	\$100,000
Sidewalk on 400 North by High School	High School	Broadway	2000 ft.	\$60,000
Pedestrian friendly zone on Broadway				\$75,000
Bike Route on Old SR-6			12 Miles	\$1,000,000
<b>Safety</b>				
Traffic Calming on SR-19 at the reduced speed school zone				\$75,000
Rumble Strips by Elementary School within the reduced speed school zone				\$25,000
Drowsy Driving Campaign (Provide free coffee with free purchase)				\$10,000
In Town rest stop				\$500,000
<b>Intersections</b>				
Roundabout Broadway / 200 South near train depot				\$200,000
<b>Alternative Travel Modes</b>				
Shuttle Bus System (Depot to Main Street, airport, Moab, etc.)			per year	\$60,000
New Train / Bus Depot (Intermodal connection)				\$250,000
<b>Studies</b>				
Speed Study on SR-19 (35 MPH)				\$5,000
Access Management Plan on SR-19				\$50,000
				\$41,318,500

## **5.3 Revenue Summary**

### **5.3.1 Federal and State Participation**

Federal and State participation is important for the success of implementing these projects. UDOT needs to see the Transportation Master Plan so that they understand what the City wants to do with its transportation system. UDOT can then weigh the priorities of the city against the rest of the state. It is important for Garden City to promote projects that can be placed on UDOT's five-year Statewide Transportation Improvement Program (STIP) as soon as possible. The process for placing projects into the STIP and funding of these projects can be found at UDOT's homepage @ [www.udot.utah.gov](http://www.udot.utah.gov), tab on "Doing Business" select the tab for "Planning and Programming" here there is a subtopic entitled "Statewide Transportation Improvement Program (STIP)" that describes this program in detail. Additionally coordination with UDOT's Region Director and Planning Engineer will be practical.

### **5.3.2 City Participation**

The City will fund the local Green River City projects. The local match component and partnering opportunities vary by the funding source.

## **5.4 Other Potential Funding**

Previous sections of this chapter show significant shortfalls projected for the short-range and long-range programs. The following options may be available to help offset all or part of the anticipated shortfalls:

- Increased transportation impact fees.
- Increased general fund allocation to transportation projects.
- General obligation bonds repaid with property tax levies.
- Increased participation by developers, including cooperative programs and incentives.
- Special improvement districts (SIDs), whereby adjacent property owners are assessed portions of the project cost.
- Sales or other tax increase.
- State funding for improvements on the county roadway system.
- Increased gas tax, which would have to be approved by the State Legislature.
- Federal-aid available under one of the programs provided in the federal transportation bill (TEA-21 is the current bill; SAFETEA will likely be passed in late 2004).

Increased general fund allocation means that General Funds must be diverted from other governmental services and/or programs. General obligation bonds provide initial capital for transportation improvement projects but add to the debt service of the governmental agency. One way to avoid increased taxes needed to retire the debt is to sell bonds repaid with a portion of the municipalities' State Class monies for a certain number of years.

Participation by private developers provides a promising funding mechanism for new projects. Developers can contribute to transportation projects by constructing on-site

improvements along their site frontage and by paying development fees. Municipalities commonly require developers to dedicate right-of-way and widen streets along the site frontage. A negative side of the on-site improvements is that the streets are improved in pieces. If there are not several developers adjacent to one another at the same time, a continuous improved road is not provided. One way to overcome this problem is for the jurisdiction to construct the street and charge the developers their share when they develop their property.

Another way developers can participate is through development fees. The fees would be based on the additional improvements required to accommodate the new development and would be proportioned among each development. The expenditure of additional funds provided by the fees would be subject to the City's spending limit. However, development fees are often a controversial issue and may or may not be an appropriate method of funding projects.

